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The Bristol Medico-Chirurgical Journal

" Scire est nescire, nisi id me
Scire alius sciret."

AUTUMN, 1941.

MEDICINE FROM ANCIENT GREECE TO SOVIET RUSSIA

BY

PROFESSOR B. FARRINGTON, M.A.

Professor of Classics, University College, Swansea.

Being the substance of an address delivered to the Bristol Branch of the Society for Cultural Relations on 16th July, 1941.

FOR the purpose of this address the term medicine is used in the sense given to it by the distinguished American doctor, Le Roy Crummer, when he said that medicine meant to him not the discoveries of the great men, Vesalius, Harvey, Jenner, and the rest, but the kind of medical attention available to the common man down the centuries.[1]

I know that I am addressing a *Society for Cultural Relations*, and that I may appear to be straining the word culture in applying it to medicine regarded not simply as an art or a science, but primarily from the sociological point of view as the application of the art of medicine to the people as a whole. But this extension of the meaning of the word culture is excusable, indeed necessary, in the present instance, as the distinguishing character of medicine in the U.S.S.R. is its emphasis on the sociological side.

An historical approach to the subject, justifiable under any circumstances, is also peculiarly appropriate to medicine in the

U.S.S.R. ; for medicine there, like every other human activity, is, in accordance with the prevailing philosophy, regarded as a stage in an historical process. And from this point of view Soviet medical practice claims to be the culmination of the tradition of Western European medicine.

It is worth stressing this point. The word oriental has, perhaps, been too often employed in reference to the new Russia. This is unfortunate, as it creates the impression that the civilization of the U.S.S.R. is something alien to us. But, in fact, what the new Russia has done for public health has been built upon foundations laid in Western Europe, and, if it be admitted that Russia has something to teach us now in the matter of the prevention of disease, Russian practice is assuredly much indebted to the pioneering efforts of many men in various countries of Western Europe. I might mention such a man as Johann Peter Frank, the first in the world to enunciate clearly the idea that the conception of government was incomplete until it was made to include a system of medical police : or Lemuel Shattuck, the great pioneer of public health reform in the New World : or Louis Pasteur, to choose one out of the many scientists whose researches have contributed to make possible the realization of the idea of preventive medicine. Incidentally it may be observed that each of these men was as truly a son of the people as Voroshilov or Timoshenko.

Nor are English names wanting to swell the list. The Red Army and the Red Navy, like the British Army and the British Navy, owe a heavy debt to the tradition of military and naval health services of which such Englishmen as Pringle and Lind were pioneers ; while the names of Sir Edwin Chadwick and of Sir John Simon (I refer here not to the twentieth-century politician but to the nineteenth-century author of *English Sanitary Institutions*) are necessary to complete even the shortest list of those who have led the world in building up the theory and the practice of public health services.

But the movement, of which these men were pioneers, arose out of a situation as old as civilization itself. At least as far back as the fifth century B.C. in Greece we find clearly defined the two elements of the problem we are considering, that is to say, the existence on the one hand of a scientific medicine, and on the other hand the difficulty of its application to the needs of society as a whole.

Hippocratic medicine, while based on no more than an elementary knowledge of anatomy and physiology, was, as is universally admitted, thoroughly scientific in outlook. It had a conception of health and disease to which, even in quite modern times, the attention of the medical profession has been recalled, with beneficial

effects on practice. The Hippocratic physician regarded life as a principle of activity which manifested itself by maintaining an organism in a certain environment. Perfect health, which exists only ideally, implies a perfect balance between organism and environment. Sickness is an effort to restore equilibrium. Health and sickness are thus two states tending to the same end, the preservation of the individual. Symptoms are cries of Nature to reveal to us the state of the body. It is the physician's business to learn to interpret these, and to decide (*a*) whether Nature is strong enough to triumph, when the physician essays merely to help her by prescribing rest, a purge, and light food ; (*b*) whether Nature is going to be beaten, when the physician must be prepared to apply more vigorous and positive measures ; and (*c*) whether Nature's own curative efforts may not be so violent that they need to be controlled and moderated by the physician's prudent care.[2]

If we add to the elementary but very intelligent medical practice based on these principles an admirable technique of surgical treatment of wounds and dislocations, we find that the Hippocratic physician had at his disposal a really serviceable art for the amelioration of the sufferings of mankind. But if we turn now to the sociological problem of the application of this knowledge and this skill to the population as a whole, the picture is not so satisfactory.

In his *Laws* Plato gives us the following glimpse of the real position of medical practice in fourth-century Greece :

> The sick in our cities are of two classes, slaves and free. Slaves are for the most part attended by slaves, who run round visiting them or wait for them in their consulting rooms. There is no discussion between patient and doctor about the particulars of each case, but, with an air of being fully informed, the doctor prescribes some empirical remedy, like an unconstitutional monarch whose will must not be questioned, and skips off to attend on the next of the sick slaves, thus relieving his master (that is, the free doctor) of the care of such patients. But free men are, as a rule, attended by a free doctor. He makes a thorough examination into the course of the disease from the beginning and its nature, takes the sick man and his friends into consultation, learns from the sick man as well as teaching him, and endeavours by gentle persuasion to lead him along the path to a full recovery.[3]

From this passage it is evident that the slaves, an increasing element in the population, were excluded from the full benefits of the medical science of the day. May it then be assumed that the best medical attention was promptly available for all free men ? Surely not. Such ideal conditions do not yet exist in our own democratic society, of which Le Roy Crummer has made the pregnant criticism : " Only the rich go to a doctor at once." That in ancient

Greece there was a difference between the medical attention available for the rich and for the poor seems proved by another passage from Plato.

In the *Republic* Socrates and Glaucon discuss the sociological aspect of medical practice in their day.[4]

"Asclepius," says Socrates, "knew that in well-ordered states every man has an occupation to which he must attend, and has therefore no leisure to spend in prolonged illness. This we remark in the case of the artisan, but, oddly enough, we fail to apply the same rule to the rich."

"How do you mean?" said Glaucon.

"I mean this. When a carpenter is ill he asks the physician for a rough and ready cure. An emetic or a purge or a cautery or the knife, these are his remedies. But if some one prescribes for him a course of dietetics, or tells him to wrap his head up and keep it warm, he replies at once that he has no time to be ill, and that he sees no good in a life that is spent in nursing his disease to the neglect of his customary employment. He therefore bids good-bye to this sort of physician, resumes his ordinary habits, and either gets well, lives, and does his business, or, if his constitution fails, dies and is rid of his troubles."

"Yes," said Glaucon, "that's the proper sort of medicine for a man in his state of life."

From these observations of Plato, which are indeed in line with the other evidence available to us, we may safely conclude that Greek medicine did not develop as a health service for the working population, whether slave or free, but on the contrary tended rather, as Plato complains, to pander to the comfort of a leisured class. Nor did the general character of ancient medicine undergo any sensible improvement from this point of view when Greece was absorbed in the empire of Rome. It is true that Roman civilization did contribute something. Among the public utilities provided by Rome itself and by other municipalities throughout the empire, the care for the water supply, and the provision of public baths, were an important contribution to public health. But this is perhaps the only contribution of Rome to the care of the health of her population which does not painfully suggest also the vices of her regime.

Thus, the career of Asclepiades, the man who, in the first century B.C., introduced Greek medicine into Rome, reminds us of the ever-widening gap between rich and poor. Professionally he was immensely successful, but he figures in history not as a philanthropist, but as "the type of the fashionable West-end physician"[5]; while the position of his great critic, Galen, three hundred years later, who was surgeon to the gladiators at Pergamos, is further illustration of the crazy structure of society in the Roman Empire. For, granted that it is true, in a certain sense, that his salary represented state

expenditure on a health service, it was, of course, no more than a trivial item in the enormous bill for the provision of public entertainments of the most brutal character. Properly considered, Galen's professional position was one of great irony. A devoted adherent of the Hippocratic school, he had as part of the furniture of his mind the Hippocratic maxim: *Where the love of mankind is, there is the love of the Art.* But the state of society was such that he could only exercise the healing art by giving surgical attention to slaves whose duty was to kill one another for the entertainment of their medically-neglected masters.

This rudimentary notion of a state medical service which we find in connection with the gladiatorial schools had an analogue in the care given to the predial slaves on the great estates. During the period of territorial expansion of the empire, when slaves, one of the richest spoils of conquest, were cheap, medical attention for them was unknown. But when the limits of the empire had become fixed, and slaves had rather to be bred than captured, their health became a matter of concern and a sort of rough hospital service developed in connection with the *ergastula*, or slave-barracks, on the great estates. Finally, in any attempt to assess the factors which, in pagan society, led to the gradual formation of the ideal of a public health service, the organization of a medical service in connection with the army must not be overlooked.

With the triumph of Christianity an improvement begins, very noticeable in sentiment and not negligible in practice. In one of its aspects Christianity represents an upsurge of the depressed elements in ancient pagan society. Its appeal was to the weary and heavy-laden, and among them were specifically included the halt, the maim, the blind. The Founder of Christianity was *par excellence* a healer. To minister to the sick was to minister to God. A reorientation of the attitude of society to the sick man began. The fourth century is claimed as an era of great social advance. "Side by side with the strictly religious houses," a distinguished authority informs us, "there sprang up innumerable charitable institutions—orphanotrophia, ptochotrophia, nosocomia, gerontocomia, brephotrophia—intended to relieve the wants of every class and every age and not merely those of citizens, as had been the case in heathen Rome and Athens. Not the least of the debts which the world owes to fourth-century Christianity is the invention of open hospitals." [6] A consequence of this great movement is the fact that the origin of many of our hospitals is to be found in monastic provision for care of the sick and indigent.

But while Christianity may claim to have initiated a new social attitude towards the sick and the suffering, it is still a far cry from

this to any comprehensive system of organized care for the physical well-being of the labouring masses as a whole. Christian charity was a work leading to salvation, undertaken more in the interest of the eternal well-being of the doer than of the temporal well-being of the patient. The secular ideal of public health is a modern thing, and, like modern humanitarianism in general, had its rise in the eighteenth century.

It is, at any rate, at the beginning of the eighteenth century that we find for the first time in history a clear enunciation of the view that medicine has a special duty to perform in safeguarding the health of the working classes. Bernardini Ramazzini was the prophet of the new idea. 1713 was the year which saw the completion of his arduous researches and the publication in its final form of his great work, *De Morbis Artificum*, or *On the Diseases of Workers*.[7] In his *Dedication* to this work the author tells us that he "thought it would be of advantage to the republic of mankind if he did what no man before him had done, that is to say, subjected the diseases of workers to special examination and suggested remedies for them." He was aware both of the novelty and the importance of the attempt, and he acquitted himself of his self-imposed task with a conscientious thoroughness. Moreover, a witty humanity in his presentation of his material imparts to his book a literary as well as a scientific value. The *De Morbis Artificum* deserves a high place in the history of humanism.

His *Preface* makes clear that he envisages the problem of disease from quite a new angle. He sees disease no longer as an accidental misfortune interfering with a man's work, as it had appeared to Plato, but as something occasioned by his work, directly conditioned and determined by the character of the work. This point of view makes of disease a directly sociological phenomenon and invests society with new responsibilities in face of it. I quote his own words from the *Preface* :—

> "Necessity is the mother of all arts, liberal as well as mechanical, and they are no mean blessing. But neither are they an unmixed blessing. For it must be confessed that some arts are the cause of grave injury to their practitioners. Many an artisan has looked to his craft as a means to support life and raise a family, but all he has got from it is some deadly disease, so that he has departed this life cursing the craft to which he had applied himself."

Accordingly, "medicine, like jurisprudence, should make a contribution to the well-being of the workers, and see to it that, as far as possible, a man should exercise his trade without injury."

Hippocratic medicine, as we have seen, had been careful to consider the organism in its environment, but the environment, for the Hippocratic doctor, had been merely the *natural* environment— the

water, the wind, the soil, the seasons, with a glance also at the political constitution and national customs.[8] With Ramazzini, for the first time in history, the social environment takes its proper place in the picture.

" When a doctor visits a worker's home he should be content to sit on a three-legged stool, if there isn't a gilded chair, and take time for his examination. And to the questions recommended by Hippocrates ' What sort of pains have you got ? What caused them ? How many days have you been ill ? Are your bowels working ? What is the state of your appetite ? ' he must add : ' What is the nature of your occupation ? ' "

Ramazzini himself narrates in moving style the circumstance which suggested to him the enquiry which was to be the chief work of his life.

" In our town "—he lived in Modena—" which is pretty populous for its size, and which for that reason has tall houses closely packed together, it is the custom that the drains which run in different directions through the streets should be cleaned out in each house once in every three years. When that work was going forward in our house on one occasion, I observed one of the labourers making extraordinary exertions to get through with his task. I pitied him on account of the cruel nature of the job, and asked him why he worked so hard and did not rather take it gently as so to avoid exhausting himself by his excessive exertions. The poor fellow lifted his eyes up out of the pit and fixed them upon me : ' Nobody,' he said, ' who has not tried it can imagine what it costs to spend more than four hours in this place. It's as good as going blind.' When he came out of the sewer, I examined his eyes carefully and found them blood-shot and clouded. I asked him whether the cleaners of privies had any regular cure for this trouble. ' None,' he said, ' except to go home at once, as I shall do now, shut themselves in a dark room and stay there till next day, bathing their eyes from time to time in warm water. That helps the pain.' "

His practical and unsentimental reaction to this experience was to examine in person into the conditions of work, and describe the occupational diseases, of every type of worker in his neighbourhood. The following is the list : Metal-miners, gilders, healers by inunction, chemists, potters, tinsmiths, glass-workers and mirror-makers, painters, sulphur-workers, blacksmiths, workers with gypsum and lime, apothecaries, cleaners of privies and cess-pits, fullers, oil-pressers, tanners, cheese-makers and other workers at dirty trades, tobacco-workers, corpse-bearers, midwives, wet-nurses, vintners and brewers, millers and bakers, starch-makers, sifters and measurers of grain, stone-cutters, laundresses, workers with flax, hemp and silk, bathmen, salt-makers, workers who work standing, sedentary workers, " Jews " (that is to say, old-clothes-men),

runners, grooms, porters, athletes, those who strain their eyes over fine work, voice-trainers, singers, farmers, fishermen, printers, scribes and notaries, confectioners, wood-workers, grinders of razors and lancets, brick-makers, well-diggers, sailors and rowers, hunters, soap-makers. And so that nothing, if possible, should be left out, there are special discussions of camp-diseases, diseases of learned men, and health protection of nuns.

It is a social document of extraordinary richness, written plainly but with point and skill. We note the author's observation that he had "never seen an old corpse-bearer." We are shown the makers of mirrors examining their ravaged faces in the mirrors they themselves had made and cursing their choice of a trade. We see the peasants from the Campagna flocking into the hospitals at Rome, there to fall victims to the hordes of medical students with their ignorant zeal for blood-letting and purging. We learn to understand the irregularities and the hardships of the fisherman's life. And we are taught to appreciate the complexity of the problem, and its manifold social implications, in the discussion, for instance, of the brick-makers. These men, drawn from the peasant class, suffer much from fevers. The doctors, who "know nothing of the mode of life of these workers who are exhausted and prostrated by unceasing toil," prescribe the usual remedies, purging and venesection, which they have found beneficial with their idle and overfed patients among the well-to-do. But that is not the only obstacle to a sensible treatment of these poor men. "For these wretched workmen the best remedy would be a fresh-water bath at the earliest stage when they begin to have fever, for their bodies are rough and dry with dirt, and by moistening the skin and opening the pores the fever heat would be given an outlet. But nowadays the habit of taking baths has died out, though in the remote past it was well understood by doctors. At Rome of old they were in general use, and when the workmen had been at work all day they would go in the evening to the public baths, and for a trifling sum were washed clean. . . . But since the Christian religion is more concerned for the health of the soul than for that of the body, it has allowed this habit of taking baths to fall gradually into disuse."

With Ramazzini in the eighteenth century, although the serious battle for public health still lay in the future, in theory at least the sociological aspect of ill-health was clearly realized. And it is this aspect which, in our day, has been raised into the very forefront of the picture in that wisest of wise books on the art of medicine—I mean Dr. Sigerist's *Introduction to Medicine*. Here, in the chapter on *The Sick Man*, we are invited to ponder on the meaning of the words, *to be unwell*, and advised that we must put in the first place the sociological aspect of the question.

There can be no doubt, Sigerist writes, that the sick man occupies a quite special position in society. The task of the doctor does not consist in an anatomical restoration of the patient, that is to say, in treating him until all his organs, in their structure and function, are restored to exactly the same state they were in before his illness. However desirable may be this *restitutio ad integrum*, the doctor may consider his task complete when he has succeeded in snatching the patient out of his special situation, and reincorporating him as a serviceable member in society. A scar, a disfigurement, the lack of a vermiform appendix, have no importance whatever so long as they do not interfere with the capacity of the individual to work and enjoy life.

And again, towards the end of his book, he asks : " When is a treatment finished ? When is the patient cured ? " And he answers his question thus :—

" The decisive factor is of a functional, nay, of a sociological nature. A sick man is cured, our mission is accomplished, only when the individual is again fully equal to the demands which life imposes upon him, when he is re-integrated with society, whether in his old situation, or, if that is no longer possible, in a new one."

Then, with characteristic honesty, Sigerist adds : " It is not our business to find the man a new post. Here economic considerations come into play."

" It is not our business to find the man a new post." But whose business is it ? And can medicine itself avoid frustration unless it, like the sick man, is re-integrated with society ? To these questions, which are simply a repetition of the problem we undertook to consider in this address, namely, the application of the best available medical attention to the whole of a given population, Dr. Sigerist now tells us that he has found the answer, and found it in the U.S.S.R.

Before Dr. Sigerist undertook to investigate conditions in the U.S.S.R., English readers had at command a variety of sources of information of which the most accessible and the most authoritative was probably Semashko's *Health Protection in the U.S.S.R.* (Gollancz, 1934). Here it was emphasized that the basis of Soviet health protection lay in the new system of society in which unemployment had been abolished, illiteracy liquidated, and health protection organized in close connection with the productive activities of society. The protection of health, like the exploitation of productive resources, had become the concern of the central government ; health protection was co-ordinated with the general economic plan characteristic of the Soviet system, and was operated through a net-work of local agencies which in the last resort drew in every member of the public to active participation. " The health

service plans are discussed at the factory meetings to see whether they correspond to the interests of the population." Intelligent participation of the layman was possible because, in addition to the appointment of duly qualified experts, provision for public health included such matters as housing conditions, public utilities (water-supply, drainage, baths, laundry, etc.), conditions of work (hours, holidays, accidents), communal feeding, children's crèches, sanatoria, health-resorts, and so forth. Semashko had been the first Commissar for Public Health and had held his post for twelve years. There was, therefore, every reason to respect his authority. Nevertheless, so large were the claims, and so important their bearing on the future of society if true, that it could not but be matter for profound satisfaction when so eminent an outside authority as Dr. Sigerist undertook to make an independent investigation.

In order to estimate the worth of his opinion it is necessary to recall in a few words the career of Dr. Sigerist. It was while he was Professor at the University of Leipzig and Director of the Institute of the History of Medicine that he wrote his famous *Introduction*, which, translated into the chief languages of Europe, holds a unique place in the medical literature of the present day. It is the peculiarity of this book that it combines an historical approach with a masterly survey of contemporary conditions, and, by the intersection of these two methods, throws, as it were, a double illumination on the field it surveys. After his triumph in Europe, Dr. Sigerist undertook the description of the American medical scene, secured an equal triumph there, and became the William H. Welch Professor of the History of Medicine at the Johns Hopkins University, Baltimore. There was still a third world to investigate and describe, the new civilization of Russia. Dr. Sigerist visited that vast territory, and returned in 1935 with a pronouncement which, coming from him, must have arrested the attention of his many admirers. "I have returned from my journey," he wrote, "with the conviction that Soviet medicine represents a form of health service adapted to the conditions of the industrial civilization of our days, and that what is happening at this moment in the U.S.S.R. is the beginning of a new period in the history of medicine."[9] Two years later he published in London his comprehensive and documented study justifying these strong words.[10] From this book, which runs to near 400 pages, I can do no more by way of conclusion to this address than quote a few sentences.

Here are the quotations:

"We know what should be done in medicine. We all know that slums breed tuberculosis, that unemployment leads to prostitution and to the spread of venereal diseases, that undernourishment cripples children. We all know that and yet we are helpless under the present

system. Whenever we attack such a problem, we run headlong into economic barriers. . . .

"The Soviet Union has made a fresh start, is building a new type of society in which for the first time in history man is not exploited by his fellow-man. How are medical problems solved there? What is done for the people's health?

"This is what we want to know, what we have to know, what we cannot afford to ignore. What is happening in the Soviet Union is so tremendous, so significant for the Western as well as for the Eastern world, that we have to know about it (p. 17).

"It seems to me that the following four points represent the most characteristic features of the Soviet health system: (1) medical service is free and therefore available to all; (2) the prevention of disease is in the foreground of all health activities; (3) all health activities are directed by central bodies, the People's Commissariats of Health, with the result that (4) health can be planned on a large scale (p. 84).

"Another very characteristic feature of Soviet medicine is that it has done away with the traditional distinction between preventive and curative medicine. As a matter of fact the entire system is built upon the idea of prevention. Prophylaxis is in the foreground of all medical considerations. . . . It has been estimated that in the United States only one dollar in every thirty dollars spent for medical care goes for the prevention of disease. . . . As early as 1920 more than 60 per cent. of the total appropriation of the Commissariat of Health was spent on the prevention of disease. It would be very difficult to figure out exactly how much money is spent on prevention to-day, and how much on cure, because the distinction has disappeared. Every medical worker, wherever he may be situated, is working towards the goal of the prevention of disease.

"The general idea is to supervise the human being medically, in a discreet and unobstrusive way, from the moment of conception to the moment of death. Medical workers and medical institutions are placed wherever anyone, in the course of his life, is exposed to dangers. Medical supervision begins with the pregnant woman and the woman in childbirth, proceeds to the infant, the pre-school and school child, the adolescent, and finally the man and woman at work. . . .

"In such a state the health programme is one part of the great programme of the nation. The physician is the specialist who knows about disease, and he works towards the fulfilment of the general plan side by side with the other civil servants (pp. 92–94).

"I have approached this study as an historian, in the same detached manner in which I have studied developments and conditions in other countries and in other eras of history. And I have come to the conclusion that what is being done in the Soviet Union to-day is the beginning of a new period in the history of medicine. All that has been achieved so far, in five thousand years of medical history, represents but a first epoch: the period of curative medicine. Now a new era, the period of preventive medicine, has begun in the Soviet Union" (p. 326).

Sigerist's independent survey must surely stimulate medical men and not only medical men, but Kings, Presidents, Premiers, Ministers of Health, and all men in any station of life concerned for the welfare of mankind, to inquire more deeply into the ideals and achievements of the great country which has now so fortunately become our ally in the necessary task of defeating and destroying Nazism.

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[2] Modern discussions of Hippocratic medicine are very numerous. I should like to direct special attention to *Hippocrate*, par Gaston Baissette, Grasset, Paris, 1931, pp. 183–186.

[3] Plato, *Laws*, 720 c.d.

[4] Plato, *Republic*, 406.

[5] *Galen on the Natural Faculties*, A. J. Brock, Heinemann, 1916, Intro., p. xiii.

[6] *Cambridge Ancient History*, Vol. I, p. 395. The unfamiliar Greek terms mean Orphan Homes, Beggars' Homes, Hospitals, Homes for the Aged, Children's Homes.

[7] *De Morbis Artificum*, Bernardini Ramazzini. Latin text of 1713 revised with translation and notes, by Wilmer Cave Wright. Chicago. 1940.

[8] See the Hippocratic treatise, *Airs, Waters, Places*.

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EXPERIENCES OF FIRST AID IN AIR RAIDS.

A MEETING of the Bristol Division of the British Medical Association was held at the Physics Department, Royal Fort, University of Bristol, on Thursday, 12th June, with Dr. J. A. Nixon, Chairman of the Division, presiding. A symposium on "Experiences of First Aid in Air Raids" was held.

In opening the meeting the CHAIRMAN said it was hoped to get together a body of experience which might be of use to those who had never had the experience of rendering first aid under raid conditions, and he asked Dr. H. M. Golding to open the symposium.

Dr. H. M. GOLDING (Mobile First Aid Unit): In another fortnight we shall mark the anniversary of the first bombing of Bristol and during that twelve months the doctors of the City have passed through many and varied experiences and as Dr. Nixon has said it seems worth while to recount some of the events and observe in what way they have affected our outlook on A.R.P.

In June last when the sirens first howled just after midnight, followed immediately by bomb explosions, the doctors at our post collected with commendable rapidity and they came in with exciting stories. One had run into debris and broken glass, another had been stopped time after time by wardens to prove his identity, a third told of great fires—exciting then, commonplace enough now, though to me the most fearsome part is still that drive alone from my home to my post in the middle of a bad "blitz." That night we had one patient with burns on the forearm and the nurses gathered round their first casualty like bees round a honey-pot.

In Bristol it has been the policy to establish first aid posts at established clinics or hospitals, although there has been some conflict between the A.R.P. staff and the peace-time staff it has had the advantage of a fully-equipped station for the first aid post. Although I am on a mobile unit I have had quite a deal of experience in first aid work, I have waited all night for casualties and caught nothing, and I have seen the post full to overflowing. As in other places the tourniquet, which we thought so important when making plans in pre-war days, has not made an appearance; on the other hand, we have met shock in all its forms and we have found that the degree of shock does not depend on the severity of the injury. A patient with a scratch may be profoundly shocked, alternatively a man was brought in who had been trapped by falling debris and he had

the unusual injury of a ruptured patella ligament and a forward dislocation of the knee joint, yet he showed practically no shock at all, although to his injury was added the uncertainty of the fate of his family.

One discovery we made was how dirty patients could be. They come in with their hair full of plaster, their eyes full of dust, and their clothes and bodies simply covered in dirt. On the human side we have learnt quite a lot in our first aid post. We no longer ask a patient if he can go home until we are quite sure that he has a home to go to, we inquire whether friends or relatives can take in a bombed-out patient and if necessary we arrange for removal to a hostel. We have seen a mother and father with their boy and girl walk out of the post into the cold, strangely quiet dawn, on their way to a hostel thanking us for what we have done and comforting themselves with the thought that if all else was lost they were alive and they were together.

A mobile unit is a van fully equipped to set up an emergency first aid post near the scene of a severe incident in some convenient hall, schoolroom or other building, but unfortunately this does not work out so easily. Either there is no hall just where it is needed or else the building is not blacked out, or if it has been blacked out, the blacking out is probably blasted out and we have never been able to set up a routine post. A mobile unit is stationed at a fixed first aid post, it is sent out on orders from the Report Centre and it is manned by a doctor, a trained sister, five auxiliary nurses and a driver. My unit belied its name by remaining completely immobile until the first big "blitz" in November. We were then sent to an incident at a point I knew to be about a quarter of a mile from any suitable building in which to set up a post. A warden confirmed this and pointed out that the casualties had been collected in a large surface shelter, so we went into the shelter, half of which had been cleared to allow for a number of casualties, varying from a sprained ankle to a depressed fracture of the skull, and we had to treat them under the most difficult conditions.

I would like to speak about the other half of that shelter. It was full—men, women and children standing still in a silent patient crowd. They seemed a little scared at the sight of the wounded but were otherwise quite motionless. They watched us in the dim electric light from the roof of the shelter and suddenly there was a terrific explosion from a "near miss," the shelter filled with dust, and the light went out. The crowd gave a stifled scream and we switched on our torches and shouted out that it was only the light gone out, and again they were silent and motionless. It was with great relief we saw our casualties into the ambulances and were able to find boxes for the old people to sit on and give the others room to breathe more freely.

We have learnt quite a lot in other ways. In the *St. John's Manual* we were told that for treatment for shock we should ensure freedom from worry. I was given a sharp lesson on this: a woman and a boy were completely buried by debris, I watched them being dug out and when the woman's shoulders and head were exposed she said, "I have

lost my handbag." A man standing by said, " It is all right, missis, don't you worry, the policeman has got it." Actually the handbag was dug out of the ruin some four days later, but she had been most effectively treated for shock.

Apart from work with the unit, on two occasions when I was not on duty I have been called out by wardens to attend casualties. This was before any official scheme was in operation. Once I had to go to a warden's post to see a man who was unconscious with severe head injuries and all I could do was to see he was not bleeding and get him packed off in an ambulance. Another time I went to see a woman and child who had been trapped and when they were released they were only slightly injured and shocked. I put them into the back of my car and ran them up to the post and there they had treatment. Apart from anything I was able to do for the casualties I felt my presence and advice was a great relief to the wardens and rescue men, and this is a strong reason why a doctor should be present at as many incidents as possible.

It would be ungracious of me to finish without paying a high tribute to the sisters and nurses of my unit. They have turned out in the most hazardous conditions without hesitation, they have never shirked any duty or order, and anything I have been able to do has been completed through their kindness and efficiency. Our relations with the police, the ambulance and rescue parties have always been most cordial and we have never failed to find a helpful co-operation. Bristol is having a quiet period, but if our tribulation should start again we do feel in our district that with the experience we have had we should be able to tackle any job which was given us and we should not be found wanting.

Dr. A. M. FRASER (Assistant M.O.H. Bristol): We have been asked to confine ourselves to actual personal experiences. My experience has been in Bristol's Control, where my business is to advise and help the Divisional Report Centres in the task of operating the casualty services. This term " Report Centre " does not occur in peace-time ambulance or casualty work, and I should like to say a few words on the organization of the service.

For purposes of operation Bristol is divided into six divisions, each of these is built up to be an independent unit to function by itself, which means, as regards casualty work, it has an action depot, attendant ambulances, first aid and rescue parties, at least one first aid post, one first aid mobile unit, first aid centres, an emergency mortuary and a blister-gas cleansing station. All these are co-ordinated by the officer in charge of the Divisional Report Centre. It is to the Report Centre that the Wardens, Police, and A.R.P. Services send information and make their needs for assistance known. I am stressing the existence of these centres because it happens sometimes that a member of the public needing an ambulance sends to where he sees an ambulance stationed, only to be referred to another building. The various reports that come in all have to be pieced together to give a proper picture of

the incident, but having established their occurrence prompt action is essential for the work of the casualty services.

First and most important is the question of reinforcements. Each division is independent, but it is only so to the extent of its own resources, which means where ambulances are concerned about twenty and mobile units two. No one knows how big the air raid is going to be and each centre sends a copy of its action message to the Control. When the Control realizes that more help is needed than the division has at its command it makes a rough estimate of what it needs and asks Control to supply it. Some divisions may be heavily engaged and others only slightly and the latter are instructed to send assistance to the former. The necessity of having ambulances here and there makes smoother working for one district to help another rather than to call for outside help, which must be met and organized and given guides. On one occasion the regional authorities asked if we would like reinforcements. These came in during daylight and were distributed throughout the city. Had a raid occurred they would have been most useful working as part of Bristol's own organization.

The chief value of reinforcements is not during a raid night but on the following night should a repetition occur. Our system of working depots requires that men must come on duty in order that all vehicles should be manned, but if we had heavy recurring raids exhaustion would come in. I have the impression that it would be more satisfying to the county people to render first aid rather than to collect dead bodies, which was the great bulk of the work when they came in during the latter part of recent raids.

To get reinforcements by direct telephone lines is an invaluable factor. The movement of mobile units between divisions has worked well, but with the establishment of first aid centres this can be expected to work even better in the future.

The second important job is the fanning out of information from Control ; we have to keep in touch with hospitals and if we find one hospital is receiving a heavy load and others not receiving at all, instructions are sent to the Report Centres to deflect ambulances to other hospitals. This does not succeed in stopping the flow entirely, but it relieves it considerably and enables patients to get quicker treatment by taking them longer distances to hospitals where surgeons and beds are waiting. We have had a case where a big receiving hospital was put out of action, a case where a depot was bombed and a mortuary bombed, and it is through Control that some other division takes up the work of the one which has been destroyed.

A third task is the calling out of mobile units ; this is a feature which has not worked with any degree of satisfaction. Before raiding started it was assumed that mobile units would go to bigger incidents, wardens would report the number of casualties, but when raiding occurred these bigger incidents proved very rare and, instead, Report Centres found themselves faced with a large number of small incidents. Here also practice has corrected theory, casualties are not always obvious to the warden on his first hurried report, and it is necessary to maintain the rule of sending ambulances and first

aid parties to every account of an H.E. bomb having caused damage. This means that 30 per cent. of journeys are useless, but before this rule was brought in there were many incidents of people having to wait long periods before being taken to hopsital. Wardens' reports are not such as to give Report Centres any indication of whether doctors are required, and calling of doctors was left to first aid party leaders, who were asked to send a message if they wanted a doctor. This was seldom done because they preferred to take the injured straight to hospital, they still have this power and they used it in the incident which occurred last night, but we try as far as possible to make our first aid parties and ambulances operate on the lines set down by the permanent ambulance bodies. The wardens have been asked to take a hand in calling the local doctor when they wish to do so —this scheme is in process of being hammered out. Similarly, mobile units have proved their usefulness in ways far different from those originally intended. One feature that has been noted in Control is the difficulty of contacting the doctors once a raid is in progress, and in more than one incident mobile unit doctors have rendered invaluable service by remaining immobile.

This is the main task of the Medical Section of Control and there are others such as arranging for the collection of bodies, and incidentally in Bristol we have found it necessary to use the first aid parties and ambulances largely for this work—and I shall be anxious to know if other authorities have organized some other form of service. There are cases of ordinary illness to be moved, or infectious illness to be moved from shelters and other little jobs which are necessary.

What I have said shows, I think, the nature of the work done. I would suggest that doctors knowing the telephone number of the Divisional Centre get in touch with them after an incident near them. I admit that our ambulances can seldom arrive at an incident as a peace-time ambulance would do, partly because of the clerical work and partly because an air raid plus everything else happening at the same time makes it difficult.

Dr. M. E. J. PACKER: I have had the privilege of turning out on every raid, but I am going to speak only of six incidents because of the lessons I learnt at them. The first one was in September. The two units were the first to get there and we were sent for rather late and most of the casualties had been cleared away, but there were two things which were worth mentioning.

The first was that we found a casualty who had been badly trapped in a shelter. She herself was not unconscious and my colleague got there first and he found many things were necessary for such a case, but our unit was on the road. The pre-war theory was that the unit would be set up and the doctor would not leave the building, but we were no good on the road and we had to go over grounds to get at this case. We gave her an anæsthetic and applied very strong straps round her shoulders and they pulled at her from inside while I worked from outside on one foot and with a great deal of heaving we got her out.

She was laid on the ground and I was applying dressings when another doctor arrived. This particular doctor had been the first one on the scene, he had decided that her legs were embedded and would have to be amputated. Great was her joy that we had got her out before the other person arrived with the amputation apparatus. A doctor should have emergency equipment with him when he goes to an incident. In that case we had to send back to our vans for everything that we required. After that, in Bristol, we adopted the principle of having a bag supplied to doctors so that they could have emergency outfit with them and this has proved very useful indeed.

The second matter was that we parked our ambulances as near as we could, and left our personnel with the vans. When we came back we heard there was a bomb in the road and I suggested that the vans should be moved as far as possible away from the scene ; that was done and twenty minutes after another time bomb, about which we knew nothing, blew up where our vans had been, so that the vans might have disappeared and the personnel perished. Since that time I have been on spots where there were bombs and had narrow escapes. The second point I wish to register is that we should get on to a job, do it as quickly as possible, and clear out and get any unwanted personnel away.

In the second incident the bombs fell not far from my headquarters and without waiting to be sent there I went down in my car with nurses and found a number of casualties on the site. I left one nurse in a house and told the wardens to send the casualties there, went back to the post, got the van with the nurses and went back to the incident. When I got there I found there were casualties in several houses in several more or less adjacent roads. I saw what the casualties were in the first house, left some nurses with loose dressings and went to three or four other houses. In one of them there were a couple of casualties which were not very bad, all they needed were dressings and anti-tetanic serum, but the house was so badly damaged, filth everywhere, no light, we could not give the serum and we had to send the patients back to the first aid post to have their injections. The lesson learnt from that was that our van should be so arranged that we can give A.T.S. injections in the van during the night, so as to save unnecessary journeys to the post for injections. The second lesson was that taking a van round was very cumbersome, after that I used a private car. You can take a few nurses with you, the car can be easily turned, and the van can be left at the main crater as a headquarters.

The third incident which I should like to mention was not far from here, when a Y.W.C.A. hostel was hit. I found a number of girls trapped in a basement and the rescue party were getting them out. As they came out I gave them a brief examination and sent them to a house which was opened for our use, they were supplied with hot drinks and made comfortable and three of my personnel were there to deal with the minor casualties. I went back to the main site and we could hear the cries of women who were trapped. The rescue party worked as quickly as it could and managed to get the head and one breast of one woman uncovered, there was a lot of overhanging debris. the woman was dead and we moved out. In a few moments the whole

of the debris collapsed where we had been. I have a fair bit of experience of crawling through holes. I would far rather crawl through a narrow hole than a big one which is likely to collapse. I went in one place where there was a narrow hole, I wriggled through on my " tummy " and got to where another was buried, she was also dead and I wriggled back tail first. In the wriggling forward I had got my tin hat on, but afterwards I realized it was a foolish thing to do, supposing it knocked against something which released a lot of stuff I should have been buried, it would have been better to have wriggled forward without a hat. One's hair gets filthy, but that is better than being buried under tons of debris.

In the same incident I left one man to look after the woman who was buried, we came across others who were trapped, I left two nurses there and went into a further house where I climbed an improvised ladder to find a woman who had been blown under a wash-stand and was dead. It is essential for doctors to take out several nurses with them, one will not do, one helper can be left here and there and one can keep in touch with all the incidents at the same time. The night was pitch dark and I could not see who the people were or if there were people there, but when I got back I mentioned the name of my helper who would reply and there was immediate contact. The rescue party had to get to four people who were buried and had to do it by hand, when they got to the heads all that could be seen was what looked like a bit of dirty matting, the workers dug them out with a couple of fingers and thumb, it was not just loose dirt and rubble but bigger pieces. The heart-breaking part of the thing was that people asked for hot drinks, but we could not give them the drinks because there was not room to let down a feeding-cup. The rescue work was very slow and ever after that we took out a piece of rubber tubing which we could fix to the feeding cup and give them drinks that way. That is going to be all the more important now we have the Morrison shelters ; it will be hours before the people can be got out and if the rubber tube is available they can be given hot stimulating drinks.

Another important lesson was that the presence of the doctor made a difference. As soon as I arrived you could hear the whisper going round, " There's a doctor here," and it had a very good moral effect. The last lesson on that incident was that everything needed had to be fetched from the van, which involved waste of time and labour and afterwards I asked the M.O.H. if he would allow us to try a haversack, and the nurses have been wearing them since with dressings, scissors and antiseptics in them and the equipment is available immediately.

The fourth was the first " blitz " at St. Barnabas in which only a few houses were involved. As soon as I arrived on the scene, which was a little late, they said a lady must see the doctor at once. I told one of my nurses to go to see this lady and she went straightaway with her haversack. I went to where the bomb had dropped where two people were buried. There was no prospect of them being dug out yet and I left one person there as a contact, left a couple of nurses in the van and took a couple more in my car to the next road where I was told there were some casualties. By the time I got there they had been removed,

two of them serious, but I had not been there of course. I must emphasize the importance of having members of the personnel at the various spots watching on your behalf while you go somewhere else. The lesson beyond this was the value of the pack and the second lesson is that the doctors should be called at the same time as the first aid parties are sent out. Doubtless other doctors have found the same thing. What happens when an F.A.P. finds a bad hæmorrhage ? He says there is going to be a lot of delay, this case must be got into hospital and rightly he sends it in ; the same with a bad case of shock, he sends it to hospital, the result is the doctor rarely sees these bad cases. If the doctor was sent at the same time as the first aid party it would be worth it because all the bad cases would be seen by the doctor. The doctor need not stay to do all the dressings, he can give his instructions and leave.

The fifth incident was near my headquarters and I went there with a nurse in my car. I found there were only four casualties, two very bad, one being a bad hæmorrhage. He was bleeding profusely and a policeman was putting on an improvised tourniquet. We got them into my car and rushed them back to the post. The other case was a fractured femur with other complications, we got on a Thomas splint and rushed him to hospital, that supports my argument that doctors should go out with the first aid parties.

The last case was where we had a call to Cheriton Place ; it was entirely my mistake but I got the message, I knew Cherington Road and I shot straight off to the incident with the van following hard on my heels. I got to 24 Cherington Road and found some nasty cases there, one being a bad lung blast case. I have never seen anyone in such bad pain, he was leaping about on the ground on his back, if you understand what I mean, but the van with my case in it did not arrive. As the van was coming with me I did not trouble to go back to it to get my bag and the van did not come. I waited some little time, went back to hospital and found that the correct call was 24 Cheriton Place, not 24 Cherington Road. I had to get some morphia and send it to the nurse, but it meant a very bad hour of suffering before the morphia was given and I went on to the correct address. It impressed on my mind never to go out without my bag, and always to keep it with me and never be separated from it.

Dr. J. MORTON EVANS, Jnr. : There is little that I can add to what has already been said. I have a mobile unit situated in the centre of Bristol, and our difficulties there are mainly getting from the post to the casualty. That is due to the fact that we are situated in a comparatively unhealthy spot where raids usually occur.

The first time I was asked to go out was a single case of a man with a heart attack about half-a-mile away. We started off, I took an orderly and emergency case, and walked ; and that taught me one thing, that one does need kit which can be easily carried and therefore I have three things in my pocket : I have a torch, a hypodermic in a spirit case and a rubber-capped bottle filled with a solution of morphia, $\frac{1}{4}$ gr. to the c.c. That is useful because at an incident one is not able to get

sterile water and one has to work in the dark so that with a rubber-capped bottle one can push in the hypodermic, fill the syringe and put it into any part of the "lump of dirt," which is what the casualty is at the incident.

The second thing I learnt was for personal comfort one needed outside protection for one's clothes. I use a muffler, an overcoat, an old pair of golf trousers and shoes and gauntlet gloves. When I went to the case of the heart attack and on other occasions we had to get down very rapidly, the whole of the road was covered with glass and my orderly had quite bad cuts on the hands because he had not got gloves on. That is one small point which I have learned from experience.

As a mobile unit I have not functioned. At the first aid post the doctor and I work together unless the mobile unit is called out. We have had quite a few casualties and I thought possibly it might be of interest just to give you the percentages of injuries we have seen. Out of 250, 51 per cent. have been burns to the eyes or eye injuries : 7½ per cent. burns to the hands and limbs ; 10 per cent. head injuries, cuts, etc.; 27 per cent. wounds of the limbs ; 1½ per cent. wounds to the trunk, and 3 per cent. shock and blast. That is the main heading under which one treats them, but in many cases, of course, you may get injuries as well as shock, but 3 per cent. were pure shock or blast. Of that number 10 per cent. were sent to hospital, half of them directly, which means that they were cases which had to receive hospital treatment urgently, and the other half were asked to attend next day for skiagram or other treatment. I do not think there is very much one can say about incidents. Indescribable dirt stands out as an obstacle every time. To attempt at the scene of an incident to try to use any form of asepsis is hopeless, one can just do the least possible amount and get the person sent elsewhere, either home (and by home I mean any neighbouring house that will take them in) or some other suitable place.

When one has seen the immediate cases and sorted them out one can go to the houses which are more or less damaged, with no hot water and nothing to help, and send the minor cases to first aid posts and the severe cases direct by ambulance to hospital. One point to which I might refer was the large percentage of burns to the eyes that we have had, that is due to the fact that we are situated in the centre of Bristol, and all the 51 per cent. have been firemen, who if they have not had burns have had smoke in their eyes to such an extent that for the time they have been completely blind, and by washing their eyes out and putting in a little liquid paraffin they have had great relief. I should like to pay a compliment to the A.F.S. in that every man went back to his job. That is all I can tell you of my impressions of the best first aid one can do under the circumstances.

Dr. R. J. STEPHEN : The first night I had to be on duty at the clinic I was down there from about a quarter to seven Sunday evening to 9 o'clock on Monday morning. The doctor should be sent for as early as possible, because that night I went down before I was sent for and incendiaries were falling in clusters.

When I got over Bristol Bridge a factory was blazing and I spent the whole night at the first aid post. I saw 62 casualties, 56 were eye burn or foreign bodies in the eyes, mainly of firemen who were led down by messengers, one man with a rather severely burned face, two cases were abrasion and cuts of the hands and several cases of burns on the forearm and several cases of hysteria, two of which were soldiers. The difficulties that night were mainly in carrying out the treatment. I do not know whether the electric light was cut off by a bomb or because of the fires, a bomb dropped so close that the treatment room was blasted in and the whole building was full of smoke and we were all filthy by the morning. The difficulty was getting a light to see the lesions of the eyes, we tried the torches from our batteries in the cars, then we tried the calor gas outfit which was carried in the mobile van, but we could not get a decent light and we resorted to hurricane lamps and treated the casualties as well as we could. I felt there was a need for some antiseptic solution to instil in the eyes, we could only wash them out with an alkaline solution and put in liquid paraffin. Several of them were in severe pain because the foreign body had got into the conjunctiva and was buried. I do not know if any of you have any comments on that side.

The second "blitz" I was at was about ten days later and it was very uncomfortable. We had 18 cases, 10 were eye burns and foreign bodies. One man was brought in for shock, there were several lacerated scalps, arms and legs. In March we had a fairly heavy raid and I went down to the first aid post early. We had 11 cases there, three of them were burns and foreign bodies in the eyes due to explosive incendiaries, a sailor with a lacerated leg and a man who died within a quarter of an hour who had the whole of one side of his face blown away and his neck exposed to the vertebral column; a fractured patella, various degrees of burns—one man came in who had been treated with bleach ointment for a burnt hand and he was in considerable pain. After that we were sent out to an incident where one of the semi-underground shelters had had a direct hit. Five people had been moved out before I got there, we had difficulty in getting down because the whole street was jammed owing to a fire. There was one casualty I saw brought out alive, another 39 were brought out dead afterwards. There was a little boy trapped by his left foot, a boy of about 6, he was quite bright and cheerful, one of the first aid workers stayed by him all the time keeping him warm and talking to him. His dead mother's head was sticking out in front of him and his younger brother's legs were visible. We got him released in a couple of hours and he was in good condition and quite cheerful. We had lacerated skulls, leg wounds, severe multiple injuries, where arms and legs were simply pulpy masses of bones and flesh and clothes. You could do nothing but lay a dressing on it, they were so badly shocked that there was no bleeding. These cases were taken into the place where we set up a post, we had to use the church, we put the stretchers on top of the pews and used the aisles and passages to do our work. The people were filthy. I had difficulty in making sure whether they were alive or dead. Some were dead and others died within five minutes, the eyes were glazed. Bombs were falling outside and in using a stethoscope I could only hear my

own heart pumping. I could not feel a pulse in any of these patients. I reserved as much water as possible for hot drinks. We kept going in the church for some hours, I left the sister to attend to the minor injuries and the rest of the time I went round with various first aid people and the wardens to see whether people were dead or alive. I think I saw 18 to 20 dead people in various houses.

There was very little first aid I felt we could do on the spot; one could not suture them, they required anæsthetics and I felt that the only thing to do was to get them into hospital or a fixed first aid post. I used a vaccine bottle that I had previously made up with morphia, but one could not use more than ½ c.c. and quite a few recovered sufficiently to be sent to hospital. Whether they got there alive I do not know, they were so badly shocked we could not even get their names and addresses.

The last occasion on which I was called out was on Good Friday when we had half-a-dozen casualties. The difficulty of working at the clinic has been when the light and water supply have been cut off for a time or because of the wreckage in various places.

Dr. W. H. HAYES: All the doctors you have heard so far have been speaking from their experience as members of the official organizations. I have just joined a rota but I am speaking as a doctor who has gone to incidents from home. It is surprising how few incidents doctors have been to because until recently there has been no organization for the average G.P.

There is no lack of willingness on the part of the doctors to go to cases and no lack of incidents, but when you think of a dark night and you are in some sort of shelter and there is a rush and a bang not very far away and you go to see you will not know where the bomb has come down; if you go to look you run the chance of collecting the next one or some shrapnel. It is not, therefore, wise to go out hunting on a "blitz" night. We are hoping that the organization will soon be completed, and there will be a doctor available for any incident which occurs without going any great distance and without having to call out the mobile units unless there is something big.

Most of what I was going to tell you has already been said. I thought I would put it in the order of happenings. There are preparations which you might like to make before you go out. Dr. Evans has told you most of the tips; gum boots are very useful, one is stumbling over all sorts of debris and broken stuff. Eye shields are useful to keep dust and smoke out. I can only endorse what Dr. Evans and Dr. Stephens have said about morphia. It is useless "fiddling" about with tablets or ampoules. I took ampoules the first time I went out but it was useless, I did not know how much dirt I injected, the whole site was covered with dust. It is impossible to put on any dressings and we should have something in the way of army field dressings which can be put straight on and bandaged round.

At the incident one finds three types: very little injured who need very little attention beyond a certain amount of reassuring; more severely injured who have to be dug out, and the dead. We get more

dead than severe injuries. For the severe injuries there is little you can do, everything is filthy, give them morphia if they need it, some cases I have found do not need it, the thing to do is to get them straight to hospital. The ambulances are fairly good at turning up, although they are a bit late. I think we might have more blankets, particularly in the winter time, and possibly hot water bottles. One man we dug out after four hours with the help of straps did not appear very injured, he kept up a pretty good flow of instructions and otherwise to the people digging him out. I gave him some morphia to quieten him down, and he was very cold indeed. We put all the blankets we could find on him. Whether he managed to get warm I do not know, but he died, apparently from uræmia as a result of shock. One cannot do much other than give morphia—it is a lot—and by helping first aid parties and giving moral support.

Then there are the dead. We can be a great help. Somebody has been dug out, a part of a person is reached, and there is a cry for "Doctor." You go over and they say, "What about it?" If you can tell them that the person is dead the next procedure is to put a rope round them and haul them out. If they are alive they have to be moved more carefully. But it is not easy, in fact I have had qualms the next day that I should be told that a case was alive when sent to the mortuary.

The stretcher party seem much happier when the doctor is there. The only other points are other types of casualties one is liable to meet. There is always the possibility of a shrapnel wound, there are more incendiary burns from the explosive incendiaries and the eyes are apt to suffer. The eyes are apt to get full of smoke and one other case, which is a matter of interest, in the very first alert we ever had I had my first casualty—I was pleased at having one at all—and it was somebody who had cut her arm in getting into her Anderson shelter.

Dr. H. D. PYKE: I am not attached to any special unit. I have been called out several times, the most important being the second "blitz." I had just come from seeing a girl who carried out an incendiary bomb in her hand and some wardens asked me to go to a major incident. The electric light had gone, fortunately I had some ampoules of morphia, I took the anæsthetic and things to amputate. The scene was very eerie, there were a large number of people underneath, the place seemed full of people in different coloured hats.

As soon as I got there I was ordered off by a policeman who said there was a doctor there but he turned out to be an attendant in a sick berth in a battleship. I was there from 12 till 5. It was a grim, dirty business. The first casualty that came out I did not know whether she was an old lady of 90 or a girl of 11, I sent her to hospital. The next was a dear old lady of 70 to whom I gave morphia three-quarters of an hour before they got her out and she was sent to hospital. The next one was dead. There was a little lull. There was a striking man there, the incident officer, he had a fine, intelligent face. He went all

over the rubble and found another man alive, a little bit of stone was moving and a soldier was found, and as soon as he was free he swore like a soldier. He took a lot of getting out, we had to get some oxygen for him, he was nearly suffocated, and after that it was a question of pulling out dead people. The incident officer was very intelligent, he kept the crowd in order. The next day I was called to see him, he was crying like a baby and he has been useless ever since. The most useful people are the people who use the pickaxe and the spades. There was a crowd who grumbled hard for two hours because the next shift had not come on, the shift turned up and instead of going off the first shift stayed on and were still there when I went off.

I thought I was fairly tough, but I felt sick when I went home and for the next fortnight I felt squeamish inside. There was something dirty about the whole business, and I felt if I should ever be buried like that, and it was five hours before I was dug out, I should like to think that a doctor had some morphia which could be administered. I feel it is not right that first aid people should not have the moral support of the doctor. When I get home I often feel I have done nothing except give moral support. But if I were a victim I should like to feel there was a doctor handy and that he had the equipment to use. When I heard that there was a movement that people who were trapped should have medical help, I supported it, and it seems to me it is very slow going through. I should like to feel that there was some very well worked-out scheme where there would be help forthcoming.

Dr. I. G. DAVIES: I have no first-hand first aid experience at all, I have only treated two minor injuries in the whole of the raids, but there are one or two things I should like to say. It seems to me that some of our problems and difficulties have started from misconceptions as to the nature and type of the attack we were going to have.

I remember in the early days in 1935 or 1936, when this got going, asking somebody just what would an air raid be like and I was told "We shall hear the siren go, and about fifty German planes will come tearing across the city, there will be an unholy noise for about ten minutes, it will all be over, the all-clear will go and we shall be able to get to work."

That idea went quite quickly, but that is what I was told and I think a lot of our difficulties arose from that and have arisen from the annoying habit the Germans have of attacking in waves. The idea was that we should have mobile units staffed by doctors and nurses, they would go to the scene of the incident, set up an advanced dressing station and get down to work. But that does not happen. In Bristol itself only three times have we ever approached that state of affairs, and the direction in which the units appear to be moving now is a kind of mobile stores from which doctors and nurses go out with an emergency kit to the various scattered incidents. It is difficult to set up an advanced dressing station with bombs falling, lights and water failing and the dirt which is all round. We have made doctors much more

mobile and I have been engaged in getting doctors to the spot without all the mass of equipment which was thought necessary.

The next misconception was that there were going to be large numbers of casualties and not so much damage to property. We visualized masses of people being mown down in the streets and did not seem to realize that they would have to be dug out, which led to a difficulty about the composition of the first aid parties and rescue parties. We thought in two compartments ; we thought of first aid party men who were going to do a job of first aid on the streets and we were going to have mobile dressing stations with the badly injured going to hospital. Rescue parties were going to dig people out from damaged houses. That is not what happens at all. People do not get mown down in the streets, they have to be dug out of houses in dust and in an awful mess and that is the direction in which the first aid parties are moving. They must know how to dig people out of wreckage and rescue parties must know the best way to get them out. In the early days there was a party known as the emergency party, which was a mixed party of first aid and rescue workers, and I am not sure that that is not a very good thing. My own feeling is that I would like to see the ambulances and first aid parties much more combined than they are now. I regard the ambulances as being merely vehicles plus a trained crew. We should combine the first aid parties and the rescue parties, each knowing the other's job, with a small crew to see the people safely to where they are going.

Another lesson we have learnt is the question of reinforcements. They must come early. On two occasions I have asked for reinforcements and they have had to come a long way. The decisions should be made in the beginning because otherwise they have nothing more to do than to collect up the dead.

The next thing is the necessity for an intelligent incident officer. We have not been very successful in Bristol, but there must be somebody who does take charge of the whole incident. It is difficult to find such a man but he should be found and should be in charge.

Lastly, in one raid we took samples of figures—they are not statistical samples—to give us some sort of indication. 76 per cent. of the killed in this raid were killed by splinters, 8 per cent. by blast—by which I mean there was no trace of injury to the body externally—and 16 per cent. were killed by crushing or falling masonry. Of the injured we found 38 per cent. of cases injured by splinters, 8.8 per cent. by blast, and 52 per cent. were seriously injured by crushing and falling masonry. We did an analysis of people injured in open streets, some of the impressions which came from the figures were that 52 per cent. were injured by crushing or falling masonry and only 16 per cent. were killed by the same cause. This suggests that as a large number of injuries were not severe enough to cause death, a substantial proportion might have been prevented by an efficient indoor shelter sufficient to bear the weight of the falling material. 42 per cent. were injured by damage to private houses, while 16 per cent. were killed by the same thing, which seems to bear out the idea that an indoor shelter would save a large number of casualties. This was before the Morrison shelter was delivered and I am told in Merseyside that that has happened. One of

the essential features is that the warden must know where the shelter is, it should be away from the wall so that the rescue parties are able to go straight there and get the people out quite quickly. For that particular raid I tried to draw up some risk figures: killed, males 1·3 per cent., females 0·9 per cent., children 0·4, and the risk of serious injury males 1·8, females 0·7 and children 0·3, which means that men run nearly double the risk of women and over three times the risk of children of being killed and nearly three times the risk of women and six times the risk of children of being seriously injured. This is a rough sample which we were able to take for that particular raid.

Dr. N. S. B. VINTER: There have been many interesting points raised. The area in which I work borders on Bristol. We are organized under the Gloucestershire scheme, but we work closely with Bristol though there are one or two different arrangements. We are a small enough area to have been able to call a meeting of all our doctors and draw up an entirely unofficial scheme, but we have hopes of its working. We drew up a rota including all the names of doctors in the area and they were asked to allow their names to be placed on this rota and to be available for call if they were needed. That scheme has not been called on yet.

In the early raids it happened that I was on duty on two successive bad nights. The first aid mobile posts are not on the spot, they are given forty minutes to get on the road. On the bad nights I went to the post on my own initiative and went out with the first aid parties to assist in removal from an area where there was an unexploded bomb and I think they were glad of my assistance. The presence of a doctor is of great assistance to the first aid party members when they are working. In the area the working of the ambulance cars with the aid parties is as close as has been desired by the last speaker. They do work closely together, I have never seen a party go out without an ambulance; they work from the same depot. The mobile posts have never been called out nor have we had to call the personnel together. The personnel live at various points and have to be collected by car on receipt of a warning that they might be wanted.

Col. E. T. POTTS, of the Ministry of Health: I came here to-day to listen, not to speak. One thing which has impressed me is that many of the speakers are medical officers in charge of mobile units and they almost all say how infrequently they have been called out to incidents. Mobile units were originally started for work in rural areas and not for work in cities, yet experience has shown in some large cities that mobile units can be of very great value.

In one or two big raids in London they have been called out and used very frequently and have done very good work, and in Scotland too. On Clydeside they were used on several occasions and also did valuable work, but, of course, it is no use calling out a big unit like a mobile unit in its completeness to a small incident of three or four

casualties. You must have something like twenty or thirty to make it worth while calling out a unit of that kind.

One of a mobile unit's greatest uses has been the use of the doctor and a portion of the staff as incident doctors and that has been mentioned by nearly all the speakers—the importance of a doctor with a nurse or orderlies getting to an incident at the earliest possible moment, and that is what the Ministry is trying to attain now. This may be done in several ways. It is possible, in addition to the medical officer in charge of the mobile units, to have a rota of doctors who will be prepared to go to incidents—scattered over the town so that there will be somebody available nearby where the incident may occur. I rather wished that a speaker from Cardiff or Wales had spoken on this point because they have developed a scheme which is very sound and in many other places too they have this rota of doctors who can be called out from Control, and it has been provided that a warden may call out a doctor direct to an incident. That is a very good plan but it wants one proviso, namely, that if a warden calls out a doctor he must advise Control that he has done so, and with that proviso the scheme should work very well indeed.

One other point which impresses me is the question of the administration of morphia at incidents. That is of the greatest importance and as regards the method of administration, the original issue was in the form of tablets. It was brought to the Ministry's notice very strongly how difficult it was to dissolve the tablet in the dark and put the solution into the syringe and inject it. It has been decided that all first aid posts and mobile units will be issued with liquid morphia in rubber-capped bottles so that it can be conveniently used in the dark. That is supplied now and if there are any first aid posts or mobile units who have not got them, they should apply for them as quickly as possible.

One speaker mentioned the types of injuries which one sees. The figures he gave corresponded very well with the figures that I have to keep of the types of injury that come to the Ministry from first aid posts all over the country, and one thing that sticks out from the curves I make is that for every month since last September the highest figures are for injuries to the head and face. That has not varied since September; the second highest is wounds of the upper extremity, then you drop down to wounds of the lower extremity and so on. Burns are increasing and have increased quite appreciably since the use of incendiary bombs in such large quantities. One other interesting point arises and that is that the cases of shock, not associated with injury, are decreasing in spite of the increase in the intensity of air raids. I have not seen the figures for the month of April, but that has been our experience during the last few months.

Dr. TREVOR JONES (Cardiff): Cardiff has taken all the doctors who are in active practice and who are willing to do the work and has attached them to individual wardens' posts. There is a close association between the posts and the doctors who live near and know the warden personnel and are often the family doctors of the wardens and the people around.

When an incident occurs the warden sends immediately for the incident doctor who goes without any delay of messages through Control. He is supplied with a bag containing the requisites which have been mentioned by previous speakers, notably liquid morphia and syringe. In this bag he has other items which may be necessary. Immediately he is called out a message is sent to Control saying that he has been sent out. The Control knows then whether the doctors are available. There are not enough doctors to go round all the wardens' posts and sometimes they are attached to more than one post. We have had senior medical students from the Medical School available for the same cause. There has been a close parallel in our experience with what has been described in Bristol and our experiences have been very similar. The opportunities for the use of mobile units has been very scarce.

The CHAIRMAN : We owe a debt of gratitude to all those speakers who have given their experiences, particularly Colonel Potts and Dr. Trevor Jones and several other Cardiff doctors who have taken the trouble to come over here. I think that this meeting has been a success, and it is in my mind to have a similar symposium regarding the casualty services in the hospitals on the victims of air raids so that we have some knowledge of the surgery needed for air raid victims. If I have the least support I shall try to get a similar symposium on a convenient date in this place.

The audience signified its approval of the Chairman's suggestion, and it was agreed that he should make the necessary arrangements.

THE CASUALTY SURGERY OF AIR RAIDS.

A MEETING of the Bristol Division of the British Medical Association was held in the Physics Lecture Theatre at the Royal Fort, University of Bristol, on Thursday, 10th July, 1941, with Dr. J. A. NIXON in the Chair.

A symposium was held on "The Casualty Surgery of Air Raids."

The CHAIRMAN: To-day we are having a similar meeting to that of last month in which there will be some talk on the casualty surgery of air raids, based upon actual experience. We have our local representatives who will speak from their own experience, with which some of us are familiar, and we are very fortunate in having two visitors who will speak from a wider field of experience: Mr. Rock Carling, who has seen casualty surgery in all parts of the kingdom, and Professor Ryle, who has had experience in some of the London raids.

BLOOD TRANSFUSION.

Col. L. E. H. WHITBY: In opening this discussion, I should like to deal mainly with the subject of resuscitation, and to make two or three remarks about my own experience in Bristol in relation to equipment and amount, particularly of transfusion fluids which is required. I calculate 10 per cent. of all casualties require transfusion, whilst the average amount is from two to three pints, so that if one is receiving 100 casualties in a hospital one should lay down a stock of between 20 and 30 pints of transfusion fluid, and it is important that those stocks should be to hand ready for use by the resuscitation officer responsible for the work.

I should like to say first of all a word or two about shock in general—as to what is meant by the term "shock." It is a useful term which conjures up a picture of a person who is exhibiting lowered vitality as a result of injury, and the most striking manifestation is either circulatory embarrassment or collapse, which in clinical terms is represented most obviously by a reduction in the blood-pressure. There are a number of causes of that state, that is, it is not a definite clinical entity, it is only a train of symptoms, and it is essential for a reception officer to sort out the cases rather than merely to regard transfusion as efficacious for the treatment of every one exhibiting these symptoms. It has been found as a result of experience that the blood-pressure (particularly the serial blood-pressure readings) is the most reliable

index of patients' condition, and the pulse, on the whole, is not nearly as reliable as was previously thought.

So far as the reception ward is concerned, it may be taken that an experienced reception officer at one glance can determine patients who should go to the resuscitation ward and those who can be sent to the general wards. That cuts down the amount of manipulation and examination of the patients which should always be minimal, because that kind of movement undoubtedly contributes greatly to their distress. So far as air raid casualties are concerned—and I say that with emphasis as distinct from battle casualties, and because our ideas on shock are largely influenced by the experience of the last war when we were dealing with a different type of material—they fall into two main classes: first, the neurogenic or psychogenic type, and secondly those who are suffering from a very definite reduction in blood-volume. There are other complicating factors such as fat embolism and so on, but the majority fall into those groups, and the treatment, of course, is different for each. The neurogenic and psychogenic, those who have circulatory embarrassment because of pain or because of fear, do not need transfusion, whereas those who have circulatory embarrassment because of blood-volume reduction necessarily do so, and the whole object of treatment in the second group is to restore by a quantitative replacement approximately the amount of fluid they have lost, and it is important that replacement should be made with a protein fluid.

In general principle, therefore, you have to sort out those who are likely to respond to conservative measures only, that is, rest, warmth, morphia, plenty of fluids, and most important, reassurance. The really frightened are greatly comforted by being told that they are not going to die, and this class have to be sorted out from those who definitely require transfusion, together with conservative measures.

We have learned several lessons about these cases in particular, and in relation to these two groups, the first being the great importance of the blood-pressure determination, and of the serial blood-pressure determination. If one is in doubt one should not be satisfied with a single reading, and after transfusion one is not satisfied unless the blood-pressure is good, so that there should be ample facilities for making serial blood-pressure observations on all patients. It is not necessary to have a battery of sphygmomanometers. All that is needed is a large supply of cuffs; the instruments can be plugged in to the points nearest the patient. The second lesson of great importance is that it is essential to know the nature of the injuries; superficially a person may appear to be uninjured, yet if he is fully examined it may be found that there is a small penetrating wound. That knowledge is essential in order that one does not fail to transfuse a person who should be transfused, and the best equipment is a large pair of carpetmaker's scissors. Nothing should prevent the slitting up of a person's clothes from head to foot if necessary in order to make a proper examination.

The third rule we have made is a corollary to the blood-pressure reading. There are people who can suffer the greatest reduction in blood-volume and not have an equivalent fall in blood-pressure. A

patient may have gross injuries and one would estimate from experience that his blood-pressure would be almost unrecordable : these are cases in which common sense dictates that he must have suffered a great loss of blood, and transfusion should not be withheld merely because the blood-pressure reading is not as low as might be expected. Anyone who is severely injured and who has obviously lost blood should have transfusion up to a pint, and this treatment should not be delayed merely because the blood-pressure has not fallen dangerously low. We have found oxygen of great value in any case which exhibits gross cyanosis, and there is much to be said for the only surgery that should be performed in a resuscitation ward, the treatment of any penetrating wound of the chest : it relieves the cyanosis and enables one to put the patient in a better position to withstand operation.

There is no doubt that once a person has been resuscitated adequately he should be operated on without delay, those whose blood-pressure is restored and general condition improved tend to fall away if they are not attended to surgically with fair speed. Resuscitation does not end in the resuscitation ward, we may restore a patient sufficiently for him to leave the ward and go to the theatre, but if he is severely injured he may require more transfusion in the theatre ; the movement from the trolley to the table and loss of blood at operation may undo some of the work previously done, so that in all such cases it is as well for the last act in the resuscitation ward to be the setting up of a bottle of fluid or plasma to go with the patient to the theatre. The rate can be speeded up without any delay supposing he suffers any deterioration whilst on the operating table.

I should like to show you two tables in order to illustrate some of the points I have been trying to make.

RESUSCITATION WARD RECORDS OF AIR RAID CASUALTIES

(Excluding further transfusions required in Operating Theatres.)

	Case 1	Case 2	Case 3
Calculated blood loss (c.c.)	3,500	1,600	3,000
Total fluid administered (c.c.)	2,160	1,620	1,620
Protein fraction (c.c.)	1,540	1,155	1,155
Per cent. of total lost fluid replaced	62	100	54
Blood-pressures :—			
Initial	un.	50/35	35/5
After first pint	40/un.	70/50	80/45
„ second pint	60/40	85/55	95/60
„ third pint	80/50	105/65	115/70
„ fourth pint	105/55	—	—

The first table concerns three cases and enables me to make certain points. By means of laboratory examination it is possible to make a rough estimate of the amount of blood lost when a person is wounded. In the first case you will notice that the calculated amount of blood lost is $3\frac{1}{2}$ litres, an almost incredible amount, one would hardly believe that a patient would survive, but it is one of the things we have learnt

during this war that patients may lose even that large amount and still remain alive for a few hours. Anyone who lost that amount under battle conditions would probably never survive because of the lapse of time between receiving the wound and treatment. That is one of the essential differences between the casualties seen now and those of the last war. In that first case the blood-pressure was unrecordable; it took four pints to get his blood-pressure to a reasonable level, which represented 62 per cent. of the fluid which he had lost as the result of hæmorrhage. It is necessary to replace something more than 50 per cent. of the volume lost by a protein fluid, and if this is done a reasonable result can be anticipated. The blood-pressure reading is the only reliable guide that the transfusion has been sufficient. One could make several points out of the table. One expects a rise in blood-pressure of from 10 to 20 mm. mercury for every pint of fluid transfused. There are reasons why the expected rise may not occur and it should put the transfuser on guard at once. If that kind of rise after each pint does not occur the commonest cause is continued bleeding from an internal source, one is merely pouring fluid into the vein and it is pouring out somewhat more slowly internally.

The rate at which the fluid is administered is of considerable importance. Most casualties are in reasonable health before they are wounded and one has not to be so particular about the slow rate as when transfusing an anæmic person in civil practice. No harm will be done to a patient whose blood-pressure is below 100 Hg. by the transfusion of one or two pints at a fairly fast rate. Rate sometimes causes rigors—not all rigors are due to incompatible transfusions—and if the rate is slowed down the rigor will disappear and everything will be satisfactory.

The fallacy of transfusiou with saline can be shewn experimentally*; an animal is bled until the blood-pressure falls from 160 mm. mercury to 20 mm., and this is followed by the transfusion of a number of fluids. Citrated blood raises the blood-pressure to a reasonable level and maintains it there; plasma does the same, serum not quite as well; saline raises the blood-pressure to 80 or 100 mm. and then it falls off. A permanent effect is never obtained with saline, the reason being that it is excreted fairly rapidly. There are many who think that the provision of a blood transfusion service is unnecessary, that they achieved extremely good results with saline before, and I think that is true. Their observations are accurate, they did achieve good results, for the reason that if a battle casualty has survived his hæmorrhage his physiological equipment for the restoration of his blood-volume will have been brought into action, he will dehydrate himself and be in a poor way on that account only, and in such a case a pint or two of saline is a life-saving measure. That emphasizes again the essential difference between our casualties of to-day and the casualties with which people in my service may have to deal.

I have said a great deal about the importance of the blood-pressure and its value in assessing the condition of the patient and providing a guide for the sufficiency of transfusion. But the rule is not absolute,

* Buttle, G. A. H., Kekwick, A., and Schweitzer, A., 1940, *Lancet*, ii. 508.

the blood-pressure is not an infallible guide. A woman was admitted with gross injuries and her calculated blood-volume loss was somewhere in the region of 3 litres, one which should have given an unrecordable blood-pressure, but we found her blood-pressure was in the region of 90 mm. Hg. Common sense dictated that she should be transfused and it was done and it took four or five pints to restore her. We followed her through many weeks and when she was well again we found that she had a hypertension with a blood-pressure of 190 Hg. and had lost 100 mm. Hg., she was therefore in grave danger. A second case is that of the very young, people in the teens and twenties, whose first natural reaction to loss of blood is an intense vasoconstriction in an attempt to conserve such blood as is left. That vasoconstriction may be so great that it keeps the blood-pressure at a reasonable level despite the fact that they have lost much blood. Clinically they appear intensely pale because of the intense vasoconstriction, so that if in a young subject there are extensive injuries and a blood-pressure which is higher than one would expect and they are intensely pale the blood-pressure should be discounted to a certain extent because the blood-pressure will fall very rapidly. More lives will be lost from lack of transfusion than from the giving of it. If it is obvious from the injuries that the patient has suffered blood-volume reduction transfusion should not be delayed until the pressure has fallen to the danger level because if that is done many cases will be lost.

ORGANIZATION.

Professor J. A. RYLE : I have been fortunate since the air raids started in gaining experience in several ways. First, by having the opportunity of living at a hospital where we have been fairly busy ; secondly, with sitting with helpful colleagues on the Committee of the Medical Research Council concerned with the problem of shock and wounds, and, thirdly, by " picking the brains " of other people.

I propose to supplement Colonel Whitby's remarks by speaking of organization and duties of personnel. If these are not arranged properly the best individual work may break down. That seems to me to be a reasonable line to take because one does find places where there has been little or no air-raid experience, and they are prepared to work on preconceived notions which have had to be scrapped.

One has to talk on a certain basis on a certain sized hospital and I propose to talk on the conception of a city hospital capable of taking up to or over a hundred total casualties, and I want first of all to state what we have come to regard as a minimum personnel in such an institution. In smaller places and smaller hospitals and hospitals without students conditions vary and plans have to be modified accordingly, but I would say in a city hospital of considerable size and ready to take patients up to 100 or over, there should be on duty a medical officer in charge, or a medical superintendent, who has many functions, a surgical O.C., a physician, a receiving or admitting officer, an anæsthetist, residents, and a radiologist or radiographer, in addition to

the nurses and sisters appropriate for the work. Clinical assistants, stretcher bearers, fire watchers and so forth are also needed. It is of some importance to know what proportion of the different types of cases there might be during a single night, and roughly the figures have worked out in most places as follows : 50 per cent. of the cases admitted will not have to go to the operating theatre, some will be fractured ribs, some just bruised, or scratched, some will be moribund, some will be excited, and 25 per cent. will probably have to go through the resuscitation ward.

The best way to deal with this consideration of the organization of this work is to start from the admission of the patient, and we will assume we are dealing with stretcher cases, although, of course, sitting cases come in as well. The receiving-room officer : during the last war it was generally conceded he had to be a man of considerable experience because he had to decide whether a case could be put on a train and sent to Boulogne or whether he had to be resuscitated, or whether he was ready for operation or would be in a short time and all that was done in a quick and hurried examination. Conditions are very different in city casualties ; we have not had convoys bringing large numbers at a time. One or two ambulances might arrive at a time, but there has not, as a rule, been the swamping of the reception-room and the decision has not to be made immediately and on the spot, and it is not essential that the receiving or admitting officer should be a man of special experience, but he should be sensible. A senior house man or a specialist surgeon might be willing to take it on. When an ambulance load is brought in all he has to decide is whether the patients shall go to the resuscitation ward or to the general ward, and of the walking cases he has to decide whether they are for operation or can be dressed and put in the rest room. He can deal with an ambulance load in from five to ten minutes, which includes giving the anti-tetanus injection and taking particulars. If the patient is bad he is sent to the resuscitation ward straight away and it is the duty of the almoner's clerk to obtain particulars later. The reception officer makes a superficial examination of the patient but does not turn him over or look for wounds, he more or less decides " resuscitation," or " general casualty " ward.

With regard to the resuscitation ward, it is an essential part of the organization and I only mention it because we have found hospitals who say that they are not going to have resuscitation wards but will distribute patients among the various wards. Most of us would not accept that as a reasonable plan. A resuscitation ward is essential where all the cases requiring this treatment can be gathered together, and it should be a ward in as safe and quiet a place as possible. The personnel of the ward should include as its chief a physician who is going to make that his main contribution to the air-raid problem and under him he will have at least one or possibly two residents, one of whom is expert at transfusion—in some hospitals there is a transfusion officer—a sister and an appropriate number of nurses.

It is usual to have the cradles all ready and at times when the raids occur frequently, the beds are kept warm all the time with the cradles in position. At Guy's we have always arranged that the senior surgeon

does not operate unless the number of cases is small, we consider his job is the most responsible of all because he has to decide what is done to the patients and when; and when the resuscitation ward begins to fill and the patients are getting quiet and warm and the physician has had a look round then comes the surgical chief to begin to assess the degree of wounding of each patient. He dictates to his assistant and a board is put up at the end of the ward with the name of the surgeon who is to operate on each patient and when the operation is to be done. One can operate too soon or one can operate too late, and those decisions, as to the optimum time of operation, are best made between the physician who is there all the time and the surgeon who comes round and assesses the degree of recovery.

The surgeon-in-charge has the same function to perform in the general casualty ward, but naturally he attends to the resuscitation ward cases first of all. There are a lot of difficult problems one cannot go into here, such as, when should the patient be undressed, should they be left on the stretcher, and so on, but the only answer is that a decision must be made in each case. Sometimes they are so bad they must be left on the stretcher and lifted up on to the bed. An examination cannot be made without a large pair of scissors. The very able sister in our resuscitation ward reminded me of a "tip" when I told her I was coming here. "Tell them to have a large supply of triangular bandages." Often a little bandaging has to be done while waiting for a theatre and triangular bandages can be put on any part of the body very easily and they are easily removed and save manipulation.

Those are the chief duties of the surgeon-in-chief, he consults with the physician about chest, nerve, and head injuries, and between them they make the difficult decisions about the best time for operation.

All radiography should be done with a portable apparatus, it is much easier, and saves the patient additional moving and saves the stretcher bearers who are often having an active and difficult time.

With regard to the subsequent movements of the resuscitated patient, it is important to continue the observation and continue the treatment throughout and after the operation, and, working on that principle, our general plan is that all the bad cases are returned to the resuscitation ward from the theatre and not sent to the general ward. The patients who have come quickly out of their shocked condition are frequently sent back to the general casualty ward, but any case which is giving great anxiety is brought back to the resuscitation ward. Our ward contains twenty-six to thirty beds and we have not been over-pressed. We have taken as many as a hundred cases in night raids and seventy-five in day raids, but we have always managed to have sufficient movement to be able to keep our severe cases under the eyes of those who have seen them from the beginning. That continuity of observation is very important.

Just one more word on the question of continuity. It is only by close watching of the changes, almost from minute to minute, not from hour to hour, that decisions can be made. The operating surgeon cannot rush up to see his patients between operations, and therefore it

is a division of labour between the surgeon-in-chief with the help of the physician and his transfusion officers. The operating surgeons may not see the patient until he comes on the table, and it is asking too much to demand that they should leave the theatre.

There is no need to separate the sexes in the resuscitation ward so that the staff is concentrated in one place. They learn to know each other, and the apparatus is all in one place. That is another answer to hospitals who say they do not need resuscitation wards. It is a vital necessity and there is no doubt that it saves lives and also contributes to knowledge. We have the good fortune, at Guy's, of having a whole-time research physician who takes one badly-shocked case and studies it in the most intimate physiological way, and he, like Colonel Whitby and others, is in the process of collecting valuable scientific observations which will advance our knowledge of what must be a complicated condition, more complicated now than in the case of military casualties because we have patients whose ages vary from a few months to ninety years of both sexes; some are in uncertain health, they have been shaken or buried and are cold and their injuries are extremely varied. Sometimes there is no external injury at all, sometimes there is a penetrating wound. There is every mixture of pathology and that is why it cannot be a simple problem, yet I feel sure we shall crystallize information which will help us to say "we can transfuse" or "we can do the operation at such and such a time." In every case there is an optimum moment for operation, which can only be decided by close observation.

RECEPTION OF PATIENTS.

Dr. P. PHILLIPS: The reception of patients is a domestic matter for each hospital, depending upon its type of accommodation and layout. At Southmead Hospital we have a first-aid post, and to the question whether all casualties should go through this post I would say No. The serious casualties can be readily distinguished. If they were sent to the first-aid post, it would only congest its accommodation and delay the severely injured reaching immediate assistance.

The serious cases are, therefore, brought direct to a reception-room, which consists of a large ward—entrance at one end, exit at the other and two smaller side wards adjacent, with kitchen, store rooms, and stretcher-room. It is divided down the middle by a light screen, and about twenty beds provided on each side—one for men and the other for women and children. The beds are provided with radiant heat, cradles, blankets, hot-water bottles, etc., so that simple methods for resuscitation from primary shock can be started at once. Cases not requiring surgical operation can be moved on to the appropriate wards as soon as they are sufficiently recovered, thus liberating beds for new arrivals. The receiving ward has, therefore, served the function of resuscitation ward also, very serious cases being admitted to the two side rooms so that a minimum of handling and movement is necessary. The arrival of cases has been fairly quick after the incidents, starting

usually with a small number and working up to a maximum after several hours. I should like to add a word about the good work of the ambulance services. Casualties have been brought in so quickly that the severely wounded are soon under treatment. Under battlefield conditions many of these would have died before reaching hospital or any effective treatment. Other points of importance are :—

1. System of recording admissions so that statistics are available at any moment for the Casualty Bureau. These are done in triplicate so that three copies are available immediately.

2. The belongings of patients have led to a considerable amount of trouble, and there have been cases of the looting of personal possessions already and for that reason we have evolved a system whereby a bag is attached to the bed for clothes and boots, and a small bag for jewellery, etc. It is important that personal belongings should be listed and a careful check made of them.

3. With regard to the casualties themselves we have a card system whereby different coloured cards are used with the general treatment advised, *e.g.*, immediate operation, resuscitation, and so on. These are tied to the patient and all details put upon them : the amount of morphia, the A.T.S. injection entered on the front by the receiving officer, and on the reverse side the sisters record the time these are given. These cards follow the patients whilst they are in hospital. We have one sister in charge of the anti-tetanic injections, and another giving morphia. They do nothing else, and in that way we have managed to make certain that no case needing it escapes an anti-tetanic injection.

The most amazing thing about patients on admission is their indescribably filthy condition, and any question of asepsis is impossible. An important point yet to be learnt is how to remove a patient's clothes quickly and painlessly. With the advent of coupons for clothing this is going to be a problem. Large and powerful scissors are certainly necessary ; we want tailor's shears to open up the seams without mutilating the garments.

The fortitude of patients is remarkable.

A woman was brought in with bad laceration of the face and forehead and the first thing she told me was that she had had a marvellous escape. During those few moments I noticed her arm was bruised and I asked how she got that and she said, " The first aid man did that, doctor. You see I was buried, he was walking about and I said, ' Excuse me, you are walking on my arm.' " That is an example of a Bristolian's fortitude.

With regard to personnel I feel that persons of some experience and judgment are required to pick out those needing operation, although in my experience rapid surgery has seldom been called for. Our practice has been not to give any one team too many cases to deal with, and for the surgeons to see the cases selected and later to have the final word about the order in which they are taken to the theatre.

A review of our actual casualties : with regard to mortality 5 cases were brought in dead, 27 died within twenty-four hours from severe and multiple injuries, and 25 died after a longer period. The mortality rate works out at 10 per cent. Sex of admissions : 61 per cent. men,

31 per cent. women, 8 per cent. children under 16 years of age. Types of cases worked out as follows :—

	Per cent.		Per cent.
Head injuries, involving damage to skull and brain	18	Facial injuries	1
Scalp and superficial head injuries	12·5	Jaw	1
Chest	6·4	Eye injuries	2·6
Fractured limbs	17	Shock (with no obvious injury)	10·2
Spinal injuries	2·4	Abrasions, contusions, lacerations and bruises	21·5
Burns	1·2	Cases associated with pregnancy	0·5
Abdominal injuries	1·8	Crush injuries	3·9

With about three exceptions all the fractures were severe compound injuries.

One important point about special cases. A man was brought to the hospital with no injuries except to the cornea, and he had a prolapse on the iris on both sides. It seemed very important to get him to an eye specialist at once, and we sent him in the ambulance to the Eye Hospital, where within half-an-hour he was being operated on. He recovered his sight and has only a refraction error left which can be corrected.

Finally, in reviewing air-raid casualties as a whole, I should like to point out that our youngest patient was 1 day old, our oldest 98 years. In this total war we are not dealing with a restricted age group of fit young persons. The range of clinical material is much greater.

Our wounded include the very old and the very young, both sexes, those who were previously healthy or possibly previously diseased.

Hence, we must all remain students of these new experiences, ready at all times to modify our ideas and treatment as may seem best, in the interests and well-being of those unfortunate fellow citizens who have fallen victims to modern barbarity.

OPERATIVE PROCEDURE.

Mr. G. M. FITZGIBBON : I will not say anything very much about organization, but in addition to Professor Ryle's remarks I would like to say that seeing the cases before operation has points and I am sure that one has learnt that there is not, in the majority of cases, a desperate urgency to deal with them. They have been benefited by fluid, rest, warmth, and during a good many of the raids when Professor Short and myself have been at the Infirmary we have managed to get round to see the majority of cases before we start operating.

With regard to the order in which they come to the theatre we have left that to the senior resident officer, Miss Fox, who has proved very able indeed in selecting cases and sending them down. She patrols the wards regularly with a complete list of cases, and from time to time she visits the doubtful cases to see whether they are deteriorating or improving, and at intervals she comes down to report that such a case is deteriorating or improving, the result being that we have seen the bulk of the cases before they come to the theatre.

We do not necessarily earmark cases for ourselves, whoever happens to have finished takes the case which is waiting, and if we have seen them previously we know sufficient about them to get on with it.

Dr. Phillips has referred to the mentality of patients ; they really are extraordinary, the unquestioning confidence which they have in the hospital and its treatment is amazing and their patience and fortitude is astonishing. On the whole I find they make most excellent subjects for operation, never questioning anything and accepting anything that comes to them.

We have had an enormous amount of very valuable assistance from Colonel Whitby and his assistants, and we have been extremely thankful for their work, they have undoubtedly saved the lives of many of the casualties.

It is extraordinary what can be done. I had a man injured in the daylight raid, a man of 60, with a leg shattered and an injury to his arm. He had an unrecordable blood-pressure when he came in—it was said to be about 20—and clearly he was going to die fairly rapidly. He had four pints of plasma and one of blood, and his pressure rose to 100. I did an amputation above the knee and dealt with the wound in his arm, and in two days he was sitting up reading the paper and made an excellent recovery. He would have perished within an hour or two if he had not had a transfusion.

I should like to emphasize what Colonel Whitby said about the danger of young adults who are able to compensate by vasoconstriction and give an entirely false clinical picture. They have a good pulse and their physical condition is not too bad. One may be tempted to start operating and the condition rapidly deteriorates and will cause anxiety in a very short time.

As regards actual operative procedure it is exceedingly difficult to give you any extensive picture of the surgery of air raids, but I should have said that a high proportion differ in no way from ordinary civil traumatic surgery, running down cases and industrial accidents, and present the same clinical picture. There is no special magic about it. The difference in some cases is where there are penetrating wounds with flying bits of bomb splinters and secondary missiles—I removed a piece of motor-bicycle from a man one night. It is difficult to give a wide picture of the different operative procedures. One of the most useful things is to talk about the cases one finds most difficult to cope with to see if anyone has suggestions or comments to make as to how they should be dealt with.

The type of case I have found difficult is the multiple pepper wound. Patients come in literally smothered with dozens of small puncture wounds and, as I think one of the speakers has pointed out, some of them may be of the greatest importance. It is astonishing what may lie behind a small penetrating wound of the abdominal wall and one wastes a lot of time exploring little abdominal wounds, but occasionally one finds something that makes it worth while.

So many of the patients do not complain. The most astoundingly severe wounds may be present without any complaints of pain, or a frank denial that they have any other injury so that it is worth exploring a wound as one gets surprises now and again.

Another case is the abrasion. The incredible filth of some of these is very striking and there are large superficial areas with dirt ground into them. If they are left to heal they leave scars afterwards, they are second degree injuries of the skin, but they present a difficulty as to the best means of cleaning them. I was taught to use a nail brush on them under a general anæsthetic with a piece of soap, and that is the only satisfactory method I have found in that type of injury.

Another type of injury that I find difficult is a penetrating wound which does not go through a limb. It may go three-fourths of the way and clearly if a *débridement* is to be done that is worth while it does involve considerable risk to nerves, arteries and vital structures, and I have resorted to making a counter incision on the other side and trying to make a conical wound, the two apices meeting at the centre point, and in that way one gets a track which is relatively clean. This is open to the objection that it opens up tissues that are not injured, but one has a fairly clean track. *Débridement* should be done with scissors. I have been most impressed with the effects of spraying or covering the raw surface of a wound with sulphanilamide powder, and there is considerable evidence to show that both experimentally and clinically the administration of the drug in this way is highly beneficial and has contributed greatly to a reduction in sepsis. Sulphanilamide powder is the best to use because of its high degree of solubility, and one can be satisfied that it has got into all the corners and crevices of an uneven wound and is better than the other drugs in this respect. There is plenty of evidence that it does not interfere with granulation or repair and healing goes on normally.

The powder is difficult to spray because it tends to coagulate into lumps and clots, it tends to pick up moisture. I saw a spray a few days ago in Sir Harold Gillies' clinic in use. [Here Mr. FitzGibbon showed the spray and demonstrated its use.] It consists of a piece of copper piping soldered across the lid of a glass box, with a piece of piping down to the bottom of the bottle and a hole into the inlet pipe. The bottle stands in the theatre until it is empty and at each operation the sister has a length of sterile rubber tubing and if sulphanilamide is needed the surgeon sprays it into the wound. Rubber dust caps are fitted at the end of the tube when it is not in use. Sir Harold Gillies uses sulphanilamide in considerable quantities, and it does not interfere with the healing of wounds in any way.

I have only seen two cases of gas gangrene, neither of them fatal, neither had had sulphanilamide or sulphapyridine in their wounds. The first was a punctured wound of the calf and I saw him three or four days after operation. His general condition was poor and I did not think he would stand an amputation, and I also did not think he would be clear if one did amputate. Several incisions were therefore made and obviously affected parts cleaned up, the wounds were packed with sulphapyridine and he was given serum. The next day he was about the same, on the second and third days further incisions had to be made and the condition flared up, but he got on top of it and improved. On the ninth day he had a venous hæmorrhage and had to lose his leg, but he was in a much better condition and in spite of an obviously gross and grim infection he did not die.

The second case was one that I did not do personally, it was a minor injury of the tibial region in a woman and next day there was intensive bronzing of the skin round. In view of my previous experience I simply carried out an extensive excision of the damaged skin and muscle, packed it thoroughly with sulphapyridine and gave her serum. She made a perfect recovery and I was able to skin-graft the area. She did not lose her leg.

I have only operated on two chest wounds, one because it was a progressive hæmothorax, a wound over the lower lung. I opened the chest, found a lacerated wound, sutured it, emptied out the clot, put in a pipette tube ; it had suction drainage and made a straightforward recovery. The other was a penetrating wound ; it missed the liver and went through the diaphragm and into the base of the right lung. I started at the wrong end, of course, not realizing that the chest was damaged. I followed the track which went through the diaphragm, I opened the chest, closed the wounds, put in a pipette tube and he made a complete recovery. I wonder whether we ought not to empty cases of hæmothorax, there is more danger of infection than one realizes, and I have a strong feeling that it is the right thing to do and up to now I have done it by putting in a tube and keeping them empty by suction.

On the subject of burns I feel quite sure that we have tanned too many burns. It is exceedingly difficult to realize the extent to which necrosis will result. The burn may look like a second degree and suitable for tanning, but a number of cases continue the necrosis underneath the tan and it is found subsequently that the tan is resting on granulation tissues and not upon healing epithelium and one is confronted with two of three awkward weeks getting tan off and then a skin graft. Only those causes in which we are absolutely satisfied that the burn is only skin deep should be sprayed. Necrosis and damage is increased by tanning an area in which the burn has gone deeper than the full thickness of the skin.

On the question whether we can improve the surgical facilities, I feel life might be a little simpler for the surgeon if he did not have to work in so many places, one does one case here and another somewhere else, and the amount of time spent in getting round to one or two cases is amazing. I should like to evolve some system whereby we could concentrate our work more. Then with regard to continuity of treatment : we have suffered rather badly from evacuation of casualties when they have been operated upon, and we have not beds within a short distance of the city where one can continue treatment of these cases. I think this is a criticism which is recognized and some steps are being taken to remedy it.

Mr. E. ROCK CARLING : I think I will make a few comments on some of the things which have already been said and will take up Mr. FitzGibbon's last point about the organization of our work in conditions of heavy raiding. The fundamental principles of surgery are quite unaffected by externals like war, but the organization of our work in hospitals must be very different. I take it that a busy hospital in the ordinary event takes in in 24 hours perhaps 5 or 10

or even 20 cases and of those a comparatively small proportion need immediate serious treatment, but when you take in 50 or 60 or 100 within the space of two hours it is perfectly obvious that the organization which is satisfactory for the one type of admission is not satisfactory for the other.

When Colonel Whitby was speaking he mentioned the necessity of operating when the patient was ready. It not infrequently happens that a number of patients reach the optimum moment together, and it is very important that there should be available during the course of heavy raiding enough surgeons to supply all the available tables and to keep those tables supplied, sometimes over a very considerable period. It is comparatively easy when you have a raid one night and work during the following twelve or twenty-four hours, but it is by no means so easy when you have had continous raiding and have to work for many nights in succession. This means that we surgeons must give up any idea during conditions of raiding that we have any beds of our own or that we can select cases for our wards. All the beds of every hospital are the property of the public who require them, not of the surgeon or administration. It is of the utmost importance that during a raid there should be a surgeon or physician or both in supreme control.

Colonel Whitby's remark that the reception officer could see at a glance which patient must go to the resuscitation ward must be true, because throughout the country the untrained or partially untrained stretcher party leader has in fact succeeded in sending the serious cases to hospital and the minor cases to first aid posts. It puzzled me for a long time to know how this was done, but it seemed to be that every case which can help itself goes to a post and the helpless cases to hospital. About the patients who appear to be extremely well and who nevertheless are in danger because the initial high blood-pressure is going to fall away in due course, I think I am interpreting the opinion of the majority of surgeons when I suggest that these patients should be operated on before the moment arrives at which their blood-pressure will fall, but that transfusion must take place in the theatre and continue afterwards. These cases are ready for operation soon after they are admitted.

At one hospital the opinion was expressed that the raids were the affair of the house staff and not of the senior staff. I entirely disagree with that, certainly the most experienced members of the staff should be present during a raid. Every possible preparation should be made in the theatre for resuscitation and transfusion in the theatre for severely injured cases with comparatively little shock. Professor Ryle is in the happy position of having enough beds to enable his serious cases to be returned to the resuscitation team, but in the vast majority of hospitals only ten or twelve beds can be afforded for resuscitation purposes and in that event it is impossible to have the serious cases returned to the resuscitation room. Transfusion and the other methods must be continued in the general ward.

I agree with Dr. Phillips that the organization must be suitable for the particular conditions of every hospital. There are some where it is impossible to find a satisfactory resuscitation room without sacrificing a large number of beds, but 100 beds perfect for their purpose are better

in conditions of heavy raiding than 200 so crowded that raid conditions lead to muddle. It is the universal experience that we must not rush and to make haste slowly is without question the right procedure.

I also agree with practically every word Mr. FitzGibbon said. It is very important that a surgeon should consult with the physician in charge of the resuscitation ward as to the most appropriate moment for operation and the order in which the cases should be sent to the theatre. There is this corollary, that if the surgeons do not see their cases very careful records must go to the theatre with the patient. It is extremely humiliating when an abdominal operation has been performed and one or two wounds on the limbs attended to, to discover that there is a penetrating wound which is traversing the edge of the spinal column and damaged a couple of nerves *en route*.

I must endorse what has been said about the importance at the appropriate moment for complete undressing and very thorough examination of the patient. That must often be postponed until resuscitation has proceeded a long way, but it must be done before the patient goes to the theatre.

It is true that a great many of these injuries are like those seen in civil life. My experience with regard to pepper wounds is that they take care of themselves and it is not necessary to spend a great deal of time in going over thirty or forty tiny wounds, but there is nothing more dangerous than an innocent-looking penetrating wound. A first aid doctor said that he had on a certain night done up many small insignificant wounds of the scalp. "Yes," said the surgeon who had received these cases, "you sent 11 in one night, 4 had foreign bodies in the brain and the other 7 had depressed fractures." Penetrating wounds are terrible pitfalls, very small fragments may do enormous destruction.

I hate the word "*débridement*." What we should have said long ago was that a wound should be laid widely open, because nobody knows how far the cut ends of severed muscles may retract. I have looked on at operations and longed to say, "For goodness sake, lay those two wounds into one and clear up that dead muscle or your patient will die of gas gangrene," and in at least one case I had almost to say it to a colleague of my own standing. Lay your wounds widely open until you can get to every possible recess.

With regard to abrasions a number of surgeons have resorted to scrubbing, but it was sometimes accompanied by very severe shock. Some people have used liquid paraffin as a cleaning agent and it is worth trying.

No surgeon would condemn Mr. FitzGibbon if he made a further incision in a penetrating but not traversing wound in order to ensure a clean wound. It is the only way to do so.

He said that sulphanilamide was of great value and that there was ample evidence of that. I am not quite sure that there is scientific evidence of it, but I will go this far and say I shall be extremely sorry if I have a large wound on my soft parts and the surgeon operating on me does not use it. Those soldiers who were evacuated from Crete without any treatment at all except some sulphanilamide put upon the surface of their wounds arrived in Egypt in an extremely satisfactory condition. Not more than 15 grammes should be put into wounds, some people

think 5 is sufficient, but I think something like 10 grammes and possibly more is needed in big wounds. Some surgeons have begun to use an emulsion of sulphanilamide in order to make sure of it getting into the wounds and others have employed it in a vaseline base, but the proper base has not been discovered.

With regard to the cases of gas gangrene which recovered where amputation was not advisable at the time, I wonder if Mr. FitzGibbon has had any experience of zinc peroxide. Mr. Tudor Edwards is the great exponent of the use of zinc peroxide for gas gangrene in this country.

A hæmothorax should certainly be kept empty.

I cannot go into the whole story of coagulation of burns, but I think the vast majority of surgeons would agree that we have been trying to teach the medical public that coagulation is the life-saving method of treating burns and now we say, "You must not use coagulation." It has been put forward by the plastic surgeons that in third-degree burns where the skin is destroyed in toto, they should not be coagulated. They do sometimes heal perfectly under coagulation but they heal with the loss of the amount of skin that has been destroyed, the healing takes place by the drawing of the skin together to fill the part that has been lost. It does not epithelize over the whole of the lost surface and for that reason and because tanning is a bad preparation for future grafting the plastic surgeon would like every third-degree burn treated by any means other than coagulation. If one could be certain that a burn was third degree the answer would be simple, but every burn which is third degree is also first and second. If there is some part of a burn which is third degree the use of coagulants is precluded.

I must go back to the question raised by Mr. FitzGibbon on the question of operating at many places and the continuity of treatment. It must be extremely difficult to arrange this because we are not doing casualty work all the time, we are continuing our peace-time work at the same time. It does seem preposterous that we should spend a large amount of time doing work in different places instead of concentrating at the hospital where we do our casualty work, and the hospital to which those cases are evacuated. I do not see how any body—the E.M.S. or the Ministry of Health—can make such changes, it can only be arranged locally. It is not beyond the wit of man to do so and it would work to the advantage of the public. Odd little things bring about great changes and I suppose it is quite possible that a shortage of petrol may effect the change which we are unwilling to arrange for ourselves. If so, it will be the only good thing one knows about petrol!

Mr. K. H. PRIDIE: The cases come so very quickly from the scene of the incident that it seems unnecessary to put forward any complicated plan for a 10 minutes' ride. The casualty has to be taken off the ambulance for examination, taken to the resuscitation ward, examined again, taken to the theatre and unbandaged again. We do not see the Thomas splint used for first aid work because it is impracticable, but I should like to make some criticisms on the first aid work. Use is not made sufficiently of a firm bandage over wool.

I have only once seen a case where a tourniquet definitely saved a life, I have many times seen a tourniquet causing unsafe venous conditions. The dressings issued to the wardens are too small for the exceptionally large wounds we see in air-raid work. The Army authorities have a large, firm bandage which is much better. More use should be made of Liston's long splint, it is most useful for anything in the lower limb. The people at the point of the incident should straighten the limbs. I saw a case the other day of a femur sticking out and the man sitting on his own leg, it was completely crushed. Longitudinal traction should be put on the limb and a firm bandage over wool will stop any hæmorrhage and the doctors should go to the scene of the incident and supervise this work.

The doctor at the incident should put a label on the patient saying whether it is a compound fracture, so that on reception there is no need to take off the firm bandage which lets the life blood flow away. Much hæmorrhage is caused which should never have happened by the removal of a firm bandage. The bandage should not be disturbed until the patient is in the theatre. Patients should be treated by a doctor at the incident, we should get better first aid if that was done and I hope an experiment will be tried in this respect. It is not so dangerous as it sounds.

The CHAIRMAN said that Mr. Gordon Paul and Mr. Berry Haycraft had not been able to attend the meeting. He proposed a very hearty vote of thanks to the contributors to the discussion and particularly to Professor Ryle and Mr. Rock Carling who had come great distances to take part in the symposium.

The vote of thanks was accorded by applause and the meeting terminated.

Reviews of Books

The Collected Papers of Wilfred Trotter, F.R.S. Pp. vii., 194. London: Oxford University Press (Humphrey Milford). 1941. Price 10s. 6d.—In this small volume are collected together ten pre-war and two post-war essays, the former delivered by the late Mr. Trotter to various medical societies and subsequently published in various current medical journals. The appeal of these essays is by no means confined to the practitioners of the Art and Surgical Science of which Mr. Trotter was himself so distinguished a master. In his filial introduction Mr. W. R. Trotter says that his father here deals mainly with what may be called "the philosophy of medicine." He might with justice have gone farther and said that their appeal is to life itself, and therefore to all of us. In these essays Mr. Wilfred Trotter ranges from the emergencies of medical and surgical practice to the functions of the human skull; from the insulation of the nervous system to the possibility of intellect as a function, and from the art and science of a peaceful medicine to the "blood, tears and sweat" of bloody war. Over all, no matter how wide and varied their range, Mr. Trotter throws a spell of originality of thought, a wide knowledge of life, an equally broad intellectual outlook, and a human sympathy which combined, and in a word, are the real genius of Wilfred Trotter. It would be easy, did space not unhappily forbid, to quote from these papers many examples of the truth of these remarks. One alone must suffice, as topical as it is pregnant with thought. From "The Mind in War"—"the adversaries in the present war are separated not by mere political disagreement but by differences in their attitude towards life which practically amount to incompatible types of civilization . . . If the contest is of the kind suggested it is certain that the weaker must go to the wall." And is not this the law of an inexorable Nature? To read these essays in a collected form has been so great a privilege and pleasure that one can only hope that many others may have the same opportunity.

Textbook on the Nursing and Diseases of Sick Children. Third Edition. Edited by ALAN MONCRIEFF, M.D., F.R.C.P. Pp. xiv., 639. Illustrated. London: H. K. Lewis & Co. Ltd. 1941. Price 21s.—Although primarily intended for nurses, this book contains much information of practical value to the medical student and even to the recently qualified practitioner. The editor admits that it exceeds the limits of the syllabus for the Sick Children's Nurses Certificate and this new edition, with its extra fifty pages, makes one wonder whether there may not be a danger of some contributors losing sight of its primary and essential aim, which is that of a text-book for nurses. There appears to be a certain lack of balance in some parts compared with others, an almost universal failing in books of multiple authorship. For instance, one might question the need for reference to a number of obscure diseases of bone in the orthopædic section, if no room can be found in the section on thoracic tuberculosis for such an important diagnostic procedure as gastric lavage. On the whole, however, serious omissions are quite exceptional, and it must be recognized that the

book very adequately fills its position as the most useful and authoritative text-book of sick children's nursing now available. Among the many excellent illustrations a special welcome will be given to some more of Mr. Keogh's refreshingly realistic line drawings, which, together with the admirable new chapter on Children in the Tropics, must temper any regret one might have felt about the necessity for an increase in size.

Leprosy. Second Edition. By SIR L. ROGERS, K.C.S.I., C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S., and E. MUIR, C.I.E., M.D., F.R.C.P. Pp. xii., 260. Illustrated. Bristol: John Wright & Sons Ltd. 1940. Price 15s.—As tightly packed as a nodule with *Mycobacterium leprae* are these pages and eighty-one plates with most readable information on every aspect of a disease which affects between four and five million people. Africa, where incidence is as high as 130 per mille seems to have exported leprosy to Europe with Cambyses's soldiers, and to the New World with its slaves. In our present disillusionment it is gratifying to read that a high degree of civilization is inimical to the spread of leprosy. Nine years before Hansen's discovery in 1871 the Royal College of Physicians decided that leprosy was never communicable. But children and young folk up to twenty are the mainstay of the propagation of the disease by contact in the one-roomed hut method of living, especially where temperature and humidity are high and clothes few. Abrasions, scratches, insect bites and operation or postmortem pricks suffice as portals of entry. Fortunately the toxicity of the bacillus is low, for tissues may be crammed full yet symptoms slight or absent. The Cairo Congress (1938) confirmed the classification into Lepromatous (L 1, 2 and 3) and Neural (N 1, 2 and 3b) types and affirms that hydnocarpus oil and esters are still the most useful of the drugs which, however, only share pride of place in treatment with social and hygienic measures. Compulsion spells concealment, but consent means cure or care in agricultural, self-supporting settlements. Early and advanced cases should be separated and children segregated. Sterilization of married lepers and adoption of leper children is the commonsense method adopted in some asylums. Leprosy can be eradicated. Application lags behind the acquisition of scientific knowledge. This excellent book should renew the zeal of the leprologist and quicken the interest of the student.

Venereal Diseases. By E. T. BURKE, D.S.O., M.B., Ch.B. Pp. xv., 549. Illustrated. London: H. K. Lewis & Co. Ltd. 1940. Price 30s.—This book should hold a unique place amongst text-books on venereal diseases, because it represents the observations of one of the most brilliant venereologists of our time. The pictures, plates and photographs are excellent, but we should like to see more coloured plates of urethroscopic appearances in chronic urethritis. In some of his theories we find he is far ahead of the prevailing ideas on such subjects as the amount of treatment for early syphilis and the pathology of gonorrhœa. The author is most original in suggesting some of the causes for female gonorrhœa. Post-graduate students will find it a most excellent reference book, but it is too advanced for medical students, who might

diminish their chances of a successful examination result by quoting some of Colonel Burke's theories.

Technique of Gastric Operations. By RODNEY MAINGOT, F.R.C.S. Pp. xii., 240. Illustrated. London: Oxford University Press (Humphrey Milford). 1941. Price 15s.—Modern gastric surgery has become so complicated, and so many methods are advocated by responsible surgeons, that there is room for this small, well illustrated, up-to-date manual. Clear details and advice are given as to the operative treatment of gastric diseases. We are glad to observe that the author stresses the importance of suction drainage if post-operative distension of the stomach or vomiting occurs. He also advocates suction-bronchoscopy to prevent post-operative pulmonary complications. He says that its use has almost abolished deaths from chest complications.

A Complete Outline of Fractures. By J. GRANT BONNIN, M.B., B.S., F.R.C.S., M.R.C.O.G. Pp. xii., 507. Illustrated. London: William Heinemann (Medical Books) Ltd. 1941. Price 25s.—A complete outline of fractures adequately describes this book, and it must approximate closely to the fulfilment of the aims of the author—that it should be the ideal students' text-book. Being an outline, it avoids most of the difficult practical problems which assail the practitioner. The generic term "exercises" is used to cover the key to treatment of all fractures around the shoulder joint, whereas the principle of relaxed circumduction exercises deserves a very full description for its practical application. The most recent methods are included with but few exceptions, the treatment of Colles' fractures in flexion being one of these. A somewhat unusual feature is the inclusion of quite a long chapter on fractures of the skull and the more important associated cerebral states. The chapters are well arranged, with a valuable opening section on the surgical anatomy of the part to be covered. The text is adequately and clearly illustrated, there is a short list of references at the end of each chapter, and the author's style makes easy reading. This book should be of great assistance to students, to whom it will furnish a very complete outline of fractures.

Gynæcological Operations. By J. LYLE CAMERON, M.D., F.R.C.S., F.A.C.S., M.R.C.O.G. Pp. xi., 200. Illustrated. London: Oxford University Press (Humphrey Milford). 1941. Price 21s.—The author of this book has endeavoured to describe the technique of gynæcological operations as clearly and concisely as possible, and he has been very successful in carrying out his task. The book covers the whole field of gynæcological operations, which have been arranged under five headings. (1) Pre-operative investigations; (2) vulval operations; (3) vaginal operations; (4) cervical operations; (5) abdominal gynæcological operations. In each section the indications and contraindications for any given operation are pointed out, together with the difficulties, dangers and complications which may occur. The operations themselves are very fully and carefully described and are accompanied with a number of very excellent drawings, illustrating

the text. Under vaginal operations a very clear description of the Donald-Fothergill operation is given. Under cervical operations dilatation of the cervix and curetage are described, and it is pointed out that perforation of the uterns probably occurs more frequently than is generally recognized, and the importance of preventive treatment is stressed. Under the heading of abdominal gynæcological operations a full acount of the various methods of dealing with fibromyomata and malignant disease of the uterns is given, and the increasing tendency to treat malignant disease of the cervix with radium in preference to operation is pointed out. Among the complications of abdominal gynæcological operations it is stated that "burst abdomen" probably occurs in one per cent. of all abdominal operations, but if this is so, it must surely be due to some fault in the method of closing the abdominal wound. The book is attractively produced, well printed, indexed, and illustrated. It should be especially useful to those general surgeons who are interested in gynæcological operations.

Fractures and other Bone and Joint Injuries. Second Edition. By R. WATSON-JONES, M.Ch., F.R.C.S. Pp. xii., 724. Illustrated. Edinburgh: E. & S. Livingstone. 1941. Price 50s.—This excellent book on fractures came out in its second edition one year from it's original publication, and a reprint now follows within a further six months. These facts vouch for its deservedly popular reception. In the second edition Mr. Watson-Jones has re-written the chapter on compound fractures and war wounds, and includes recent developments in chemo-therapy, and blood and plasma transfusion in the treatment of shock and hæmorrhage. With his usual clarity he has covered this whole subject exceedingly well. There are other minor improvements to be found, and the reputation of this book cannot but be enhanced by the appearance of this new edition. The illustrations remain an outstanding feature and will be found to be of tremendous assistance when studying the text.

The Early Treatment of War Wounds. By WILLIAM ANDERSON, O.B.E., F.R.C.S. Pp. xi., 96. Illustrated. London: Oxford University Press (Humphrey Milford). 1941. Price 5s.—This small book is one of the Oxford War Primers, under the general editorship of Lord Horder. In one sense this series represents a revision of that published during the last war and is written by men who had experience of that catastrophe. The opening chapters deal very largely with matters of organization, of advanced dressing stations and casualty clearing stations. It is not quite clear to what extent the distinction of these units will be applicable to affairs in the present war. There is then a brief description of the principles of treatment of wounds, wounds of the brain, penetrating wounds of the abdomen and penetrating wounds of the thorax. The last chapters deal with wounds of the joints, vertebral column, nerves and arteries. The possibilities of combating wound infection by drugs of the sulphonamide group are hinted at, rather briefly, as are the modern methods of blood transfusion. The small volumn contains a great deal of useful information, packed into a small space.

Editorial Notes

Mr. H. Edmond G. Boyle.

THE death of Mr. H. Edmond G. Boyle, late Senior Anæsthetist to St. Bartholomew's Hospital reminds us that in 1902 he was Casualty Officer at the Bristol Royal Infirmary. Throughout his professional life he retained a keen interest in the Bristol Royal Infirmary and used to enquire eagerly after affairs in Bristol. Born in Barbados, Boyle felt the old link between Bristol and the West Indies with a strong attachment. His work in the field of anæsthetics won world-wide recognition. He was a cheery companion and stout friend. We offer our sympathy to his widow.

* * * * * *

Bristol Division Meetings.

THE Bristol Division of the British Medical Association has made a successful departure from custom in holding meetings in mid-afternoon during some of the summer months. At each of the two meetings whose proceedings are reported in this issue of the *Journal*, the attendance was over 150. The meetings were open to all medical practitioners, that is to say, to non-members of the Bristol Division and to non-members of the Association. By the courtesy of the University authorities, tea was served in the Physics Department after the meetings. No doubt the subjects set down for discussion and the names of those taking part were the principal attractions: but the time of day and the prospect of getting home long before "black-out" made it possible for doctors to come into Bristol from far distances.

It is evident that whilst meetings in the winter evenings cannot continue, an audience can be found willing and able to attend during the long daylight hours of "double summer time," when black-out is not due until nearly midnight by the clock.

* * * * *

Medical Privilege and Responsibility.

IN the present war the medical profession has been placed in a privileged position. Whilst the Military Service Act applies to doctors just as to all other citizens, the machinery for deciding which individual members of the profession are to be called upon to do military service has been placed under the management of the medical profession. Through the Central Medical War Committee and the various local committees, "calling-up" of doctors is determined according to the needs of the civil community and the fighting services. Those who are allocated to military service go where they are sent by the

Military Authorities. Up to the present time no compulsion has been applied to those who are left undisturbed in private practice. The Local Emergency Medical War Committee is entrusted with the task of seeing that there are sufficient private practitioners for the needs of each area. The task of this Committee has never been easy and in Bristol there are difficulties which were unforseen. In some districts no doctors reside at nights, and these districts have suffered in the past and may suffer again in the future from intensive bombing. No authority exists to compel doctors to stay during the night in localities where they have surgeries and practise by day. But experience has shown the immense value of having doctors at hand who can attend "incidents" in the vicinity. First aid posts, mobile first aid posts and first aid points cannot be available at every "incident."

Attention was first drawn to this need by the private practitioners of Bristol. They presented a strong case and it was agreed that they were right.

Now the Ministry of Health and all local authorities are urging the desirability of doctors being available to attend where required at "incidents."

But it is essential for the proper organization of such a service of doctors at "incidents" that no large districts should remain without some doctors resident in them at nights. True, no legal compulsion exists, but there would seem to be an honourable duty to be discharged to the community.

The question for the medical profession is how best to discharge this duty.

One solution might be to canvass the profession and call for volunteers to undertake to reside at nights in the doctorless districts, primarily those who have surgeries there, another might be to establish more first aid posts in such districts. In any event, it is desirable that the difficulty should be overcome by voluntary effort rather than by compulsion. No doctor in Bristol would like to see the power enforced which exists under the Defence Regulations, and to receive such an order as the following from the Ministry of Labour and National Service :—

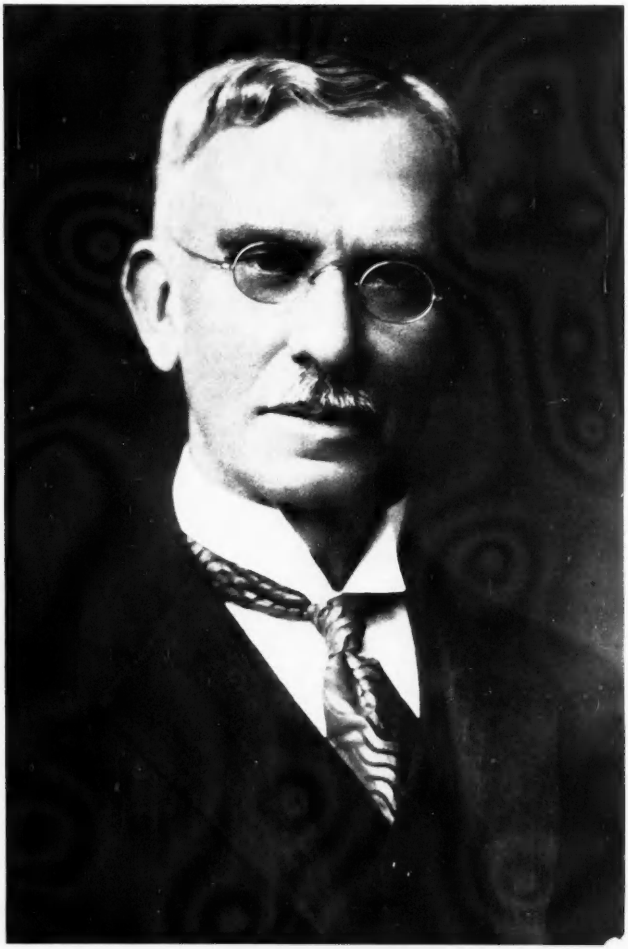
To.....

In pursuance of Regulation 58A of the Defence (General) Regulations, 1939, I, the undersigned, having been duly authorized in writing by the Minister of Labour and National Service, do hereby on the said Minister's behalf direct you to perform the following service :—

Description of service.....

(Signed).....
National Service Officer.

Yet the authority to issue these orders already exists.



HERBERT ELWIN HARRIS

Obituary

H. ELWIN HARRIS, M.A., M.B., F.R.C.S.

HERBERT ELWIN HARRIS, formerly of Bristol, who died on 20th May, was born in 1860 at Binham in Norfolk and was baptized in the beautiful old Norman abbey church there. His father, like many of his forbears, was a gentleman farmer who lived in a house facing the green; his mother, a Miss Wrench, came of another old Norfolk family, and through her, Dr. Elwin Harris was descended from Sir Thomas Browne, the author of *Religio Medici*.

He was educated at his uncle's school in Truro, whence he proceeded to Christ's College, Cambridge, and graduated in the Mathematical Tripos in 1882. He was destined for holy orders, but he persuaded his college tutor to allow him to read medicine as well as mathematics and he passed his first M.B. whilst preparing for the Tripos. After this his father consented to his continuing the medical curriculum and he went from Cambridge to St. Bartholomew's, where he was a dresser under Sir William Savory. He took the qualifications of M.R.C.S. in 1885, L.R.C.P. in 1886, and M.B. Cambridge in 1886. After leaving Bart's he was a house-surgeon at Plymouth and then worked for several years in various London poor-law infirmaries, ending with a long period at St. Saviour's, Dulwich. In 1896 he took the F.R.C.S. and settled in general practice in Bristol, where he was soon appointed anæsthetist at the Royal Hospital for Women and Children. A few years later he was elected to a vacancy as surgeon and became also surgeon in charge of the ear, nose, and throat department.

During the 1914-18 war Dr. Harris was captain R.A.M.C. (T.) on the *à la suite* staff of the Second Southern (Territorial) General Hospital and worked in the Beaufort War Hospital at Fishponds, Bristol. He was one of the last in Bristol to combine general practice with operative surgery, and he achieved success in both branches of practice. During his earlier years in practice Dr. Harris was almost hobbyless. His recreation was cycling, and in the fashion of the time he would ride vast distances in a day. Presently, however, he became an enthusiastic gardener and photographer. He was one of the first doctors in Bristol to drive a motor car, and he was distinguished by favouring an open two-seater with a blue body and yellow wheels, which always looked new. However often he changed his old car for a new one he retained the original registration number.

Dr. Harris was President of the Bristol Medico-Chirurgical Society in 1933-34, and for forty-two years was a member of the British Medical Association. In 1934 he retired from practice to live for the rest of his life at Halse, near Taunton. There he died suddenly of coronary

thrombosis, in the garden he so dearly loved, within a few weeks of his eighty-first birthday. Dr. Harris was widely known and well loved, especially by his patients, in whose interests he worked himself unsparingly. He yielded to no one in his admiration for his old teacher, Sir James Paget, a Norfolk man like himself, from whom perhaps he had caught something of the kindly courtesy which was one of his outstanding characteristics. He was succeeded in his practice by his son, who had helped him for some ten years before his death.

To his son and his daughter we offer our deepest sympathy.

[Reprinted, by kind permission, from *The British Medical Journal*, 14th June, 1941.]

The Medical Library of the University of Bristol

WITH WHICH IS INCORPORATED

The Library of the Bristol Medico-Chirurgical Society

The following donations have been received since the publication of the list in May, 1941.

November, 1941.

Army Medical Library, Washington (1)	1 volume.
British Dental Association (2)	1 volume.
Brompton Hospital (3)	1 volume.
Mrs. Collingwood (4)	5 volumes.
Dr. O. C. M. Davies (5)	1 volume.
Dr. I. Fischer (6)	2 volumes.
Professor E. W. Hey Groves (7)	25 volumes.
Hendry-Connell Research Foundation (8)	1 volume.
T. W. Lloyd (9)	1 volume.
Michell Clarke Fund (10)	4 volumes.
Shaw Bequest (11)	2 volumes.
C. H. Walker, Esq. (12)	65 volumes.

Unbound periodicals have also been received from Dr. S. B. Adams, Dr. R. F. Barbour, Professor E. W. Hey Groves, Dr. T. Milling, Professor C. Bruce Perry, Dr. J. Odery Symes, Dr. C. H. Walker.

THE ONE HUNDRED AND SEVENTY-FOURTH LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures have been attached have either been bought from the Library Fund or received through the *Journal*.

Amor, A. J. .. .. .. *An X-ray Atlas of Silicosis* 1941

Anderson, W. .. .. *The Early Treatment of War Wounds* 1941

Ballance, Sir C. .. .. *Lister Memorial Lecture*, 1933 .. .. .. (7) 1933

Bardenheuer, B. .. .. *Allgemeine Lehre von den Frakturen und Luxationen* .. .. (7) 1907

Bauer, B. A. .. .. *Woman* .. .. (4) 1927

Beaumont, G. E., and Dodds, E. C. *Recent Advances in Medicine* 10th Ed. 1941

Berry, R. J. A., and Gordon, R. G. *The Mental Defective* .. .. .. (7) 1931

Best, C. H., and Taylor, N. B. *The Physiological Basis of Medical Practice* 2nd Ed. (10) 1939

Bonnin, J. G. .. .. *A Complete Outline of Fractures* 1941

Burke, E. T... .. .. *Venereal Diseases* 1940

Burrows, H. .. .. .. *Pitfalls of Surgery* .. .. .. 2nd Ed. (7) 1925

Cameron, J. L. .. .. *Gynœcological Operations* 1941

Choulant, L. .. .. *Geschichte und Bibliographie der Anatomischen Abbildung* 1852

Clarke, A. .. .. .. *An Essay on Warm, Cold, and Vapour Bathing* 5th Ed. 1820

Clinical Histories of a Series of Cancer Cases Treated with Ensol only (8) 1940

Contributions to Medical and Biological Research dedicated to Sir William Osler in honour of his 70th birthday. 2 vols. 1919

Costler, A., and others *Encyclopædia of Sexual Knowledge* .. .. (4) 1934

Culpeper, N. .. .. .. *English Physician and Complete Herbal* 1938

Curie, J. R. .. .. .. *Hygiene* .. .. (10) 1938

Davidson, M. .. .. *A Practical Manual of Diseases of the Chest* 2nd Ed. 1941

De Kruif, P. .. .. *The Fight for Life* 1938

Ellis, H... .. .. .. *Studies in the Psychology of Sex.* Vols. 1, 3—6 1920

Fischer, I. .. .. .. *Biographisches Lexicon.* 2 Bde. 1933

Forel, A. .. .. .. *Die sexuelle Frage. 4te Auft* 1906

Galbraith, A. M. .. .. *Four Epochs of a Woman's Life* .. .. .. (4) 1907

Glaister, J., and Brash, J. C. *Medico-legal Aspects of the Ruxton Case* (5) 1937

Gray, H. .. .. .. *Anatomy—Descriptive and Surgical* 12th Ed. (4) 1890

Head, H. .. .. .. *Aphasia and Kindred Disorders of Speech* (11) 1926

Hobhouse, R. W. .. *Life of Christian Samuel Hahnemann—Founder of Homœopathy* 1933

Hunterian Orations for 1921, 1923, 1927, 1928, 1941 .. .. (7) 1921–41

Hutchison, R., and Hunter, D. *Clinical Methods* .. .. .. 11th Ed. 1941

Index-catalogue of Surgeon General's Office 4th Ser. Vol. V. E—F (1) 1940

Jones, R., and Ridlon, J.	*Contributions to Orthopædic Surgery* .. .. (7)		N.D.
Jamieson, E. B.	*Illustrations of Regional Anatomy. Sections* I—V. 3rd Ed. (7)		1941
Lloyd, T. W.	*On the Aetiology of Acholuric Family Jaundice* (9)		1940
McDowall, R. J. S. ..	*Biological Introduction to Psychology*		1941
Maingot, R.	*Technique of Gastric Operation*		1941
Martin, F. B.	*The Joy of Living.* 2 vols. .. .. (7)		1933
Mitchiner, P. H., and Cowell, E. M.	*Medical Organization and Surgical Practice in Air Raids* .. .. 2nd Ed. (7)		1941
Moncrieff, A. A. ed. ..	*Nursing and Diseases of Sick Children* 3rd Ed.		1941
Norbury, L. E. C. ..	*Carcinoma of the Rectum* .. .. .. (7)		1941
Notter and Firth	*Hygiene.* 10th ed. rev. by L. C. Adam and E. J. Boome .. .. (10)		1941
Quincy, J.	*Compleat English Dispensatory* .. .. 2nd Ed.		1719
Rogers, L., and Muir, E.	*Leprosy* .. .. 2nd Ed.		1940
Rolleston, G...	*Harveian Oration*, 1873		1873
Rolleston, H. D. (ed.)..	*Encyclopædia of Medical Practice—Surveys and Abstracts*, 1940		1941
	—— *Cumulative Supplement*, 1940		1941
Rolleston, H. D., and Moncrieff, A. A.	(Eds.). *Diet in Health and Disease*		1939
Rolleston, H. D., and Moncrieff, A. A.	(Eds.). *Modern Diagnosis*		1940
Spenger, W. G.	*Animal Experiments and Surgery* .. .. (7)		1920
Stopes, M. C.	*Radiant Motherhood* .. .. (4)		1920
Streeter, W. A.	*The New Healing* .. .. .. 2nd Ed. (7)		1932
Trotter, W.	*Collected Papers of Wilfred Trotter, F.R.S.* ..		1941
Wall, C.	*The History of the Surgeons' Company*, 1745–1800		1937
Wallace, J. S.	*The Teeth and Health* .. .. (2)		1926
Watson-Jones, R... ..	*Fractures and Other Bone and Joint Injuries* 2nd Ed.		1941
Webb-Johnson, A. E.	*The First Hundred Years* .. .. (7)		1935
Webb-Johnson, A. E.	*Bradshaw Lecture*, 1940 .. .. (7)		1940
Webb-Johnson, A. E.	*Surgical Aspects of Typhoid and Paratyphoid Fevers* .. .. (7)		1919
Weindler, F.	*Geschichte der gynäkologisch—anatomischen Abbildung*		1908
Whitman, R.	*Orthopædic Surgery* .. .. 9th Ed. (7)		1930

TRANSACTIONS, REPORTS, JOURNALS, ETC.

Brompton Hospital Reports. Vol. IX, 1940 .. .. (3)		1941
Collected Papers of the Mayo Clinic and Mayo Foundation. XXXII, 1940 (10)		1941
Medical Annual, 1941		1941
Offprints of Articles by Dr. Fischer from German periodicals .. .. (6)		—

Meetings of Societies

Bristol Medico-Chirurgical Society

By the courtesy of Surgeon Rear-Admiral Warren, O.B.E., a clinical meeting of the Bristol Medico-Chirurgical Society was held in the Recreation Hut at the Royal Naval Auxiliary Hospital, Barrow Gurney, on Thursday, 27th November, at 3.0 p.m. The President, Dr. Charles Corfield, was in the Chair.

Modern methods of treatment were illustrated by cases shown by Surgeon-Captains Critchley, Curran, and Lambert Rogers, and Surgeon-Commanders Oldham and Allison.

British Medical Association

A meeting of the Bristol Division of the British Medical Association was held in the Reception Room at the University on Thursday, 20th November, at 3 p.m., when Dr. J. A. Nixon gave a British Medical Association lecture on **"The Treatment of Gas Casualties."** Dr. H. M. Golding, D.F.C., was in the Chair.

Publications Received

From British Pharmacopœdia Commission:

Fourth Addendum to the British Pharmacopœia, 1932.

From Messrs. Cassell & Co. Ltd.:

Berkeley's Handbook of Midwifery. 11th Edition. Price 8s. 6d.

Dental Materia Medica, Pharmacology and Therapeutics. By Dilling and Hallam. Price 13s. 6d.

From Messrs. Lawrence and Wishart, Ltd.:

Lectures on Conditioned Reflexes. By Pavlov. Price 8s. 6d.

From Messrs. H. K. Lewis & Co. Ltd.:

A Textbook on the Nursing and Diseases of Sick Children for Nurses. By various authors, edited by Alan Moncrieff, M.D., F.R.C.P. Third Edition. Price 21s.

Common Skin Diseases. By A. C. Roxburgh. Sixth Edition. Price 16s.

From Messrs. E. and S. Livingstone:

Fractures and Other Bone and Joint Injuries. By R. Watson-Jones, B.Sc., M.Ch.Orth., F.R.C.S. Second Edition. Price 50s.

From OXFORD UNIVERSITY PRESS:

The Collected Papers of Wilfred Trotter, F.R.S. Price 10s. 6d.
Technique of Gastric Operations. By RODNEY MAINGOT, F.R.C.S. Price 15s.
The Early Treatment of War Wounds. By WILLIAM ANDERSON, O.B.E., M.B., Ch.B., F.R.C.S. Price 5s.
The Treatment of Burns. By A. B. WALLACE, M.B., F.R.C.S., M.Sc. Price 5s.

From JOHN WRIGHT & SONS LTD.:

The Medical Annual, 1941. Price 23s.
British Journal of Surgery. No. 112. April, 1941. No. 113. July, 1941. Price 12s. 6d. each.
Warwick and Tunstall's First Aid to the Injured and Sick. Ed. NORMAN HAMMER. Eighteenth Edition. Price 3s. 6d.
Massage and Remedial Exercises. By NOEL M. TIDY. Fifth Edition. Price 17s. 6d.

Local Medical Notes

The C.B. (Military Division) has been conferred on Colonel (Temporary Major-General) P. S. Tomlinson, D.S.O., A.M.S., for distinguished services in the Middle East.

Hunterian Professors, R.C.S.

Mr. J. T. Chesterman has been elected to deliver one lecture on "Evaluation and Treatment of Factors involved in Post-lobectomy Collapse of the Lungs."

Mr. F. W. Willway has been elected to deliver one lecture on the "Role of Surgery in Mental Disease."

University of Aberdeen.—On 10th July, 1941, the Honorary Degree of LL.D. was conferred (*in absentia*) on Dr. A. W. Falconer, C.B.E., D.S.O., M.D., F.R.C.P., Principal and Vice-Chancellor of the University of Cape Town.

Under the auspices of the Bristol Branch of the Society for Cultural Relations between the peoples of the British Commonwealth and the U.S.S.R., Dr. Benjamin Farrington, Professor of Classics at Swansea University, delivered a lecture on "Medicine from Ancient Greece to Soviet Russia" at the Victoria Rooms, on Wednesday, 16th July. His address appears on page 45 of this issue.

EXAMINATION RESULTS.

University of Bristol.—Students of the University have recently passed the following examinations:—

M.B., CH.B.—*First Examination. Pass:* J. H. Beatson, D. E. Bolt, E. R. Duchesne, S. H. Dunce, M. B. Lennard, J. C. Little, H. S. Paull, C. D. R. Pengelly, R. Simpson-White, M. de V. Varian, R. Want, G. Winternitz. *In Chemistry and Physics*:* Kathleen Blott, Jean Tregear.

* Completing the examination.

M.B., CH.B.—*Second Examination. Pass:* J. A. Ardis, R. I. Bodman, C. K. Bridge, Marjorie J. Dix, Margaret P. Drew, Susanna Foss, E. C. Hamlyn[1], Kathleen C. Iles, Flavia Z. L. B. James, P. A. James, Christine M. H. Jones, D. M. M. Jones, M. H. Kerby, G. E. P. Lee, R. Maggs, F. I. Tovey[1] [2]. *In Group I only:* J. M. Allen, W. A. Heaton-Ward, Helen M. Holt.

M.B., CH.B.—*Final Examination* (*Section I*). *Pass:* R. C. Blackney, Jocelyn Brodie, Joyce W. Brown, Hester M. Hammond, Mary Jacob, A. H. M. Oakes, A. F. Rogers.

M.B., CH.B.—*Final Examination* (*with First Class Honours*): G. S. Andrews[3] [4], Marie L. Bartlett[3] [5]. (*With Second Class Honours*): Cecil Mary Drillien[3], J. C. Valentine[6]. *Pass:* R. C. Blackney, N. J. Brown, J. D. Cardale, G. T. Cribb, J. H. P. Davies-Sage[4], Mary L. Hunt, D. S. Maunsell, H. R. Newman, Christine M. Rendell, F. B. Richards, M. O. Skelton, J. H. Wilkins. *In Group I only:* K. L. Brown, S. J. V. Gilson. *In Group II only:* Joyce W. Brown, Jean A. Butt, J. B. Tucker*.

B.D.S.—*First Examination. Pass:* A. N. R. Gibson.

B.D.S.—*Second Examination. Pass:* I. A. Morgan, Evelyn M. Pitt.

B.D.S.—*Third Examination. Pass:* R. D. Hepburn[7] [8], C. R. W. Birkett[7] †, J. R. V. B. Gibson[7] †, Jean A. M. C. Gordon-Ralph[7], J. B. K. Mann[7].

B.D.S.—*Final Examination. Pass: In Section I only:* F. C. Bryant, P. B. Carey, Margaret J. Griffith.

L.D.S.—*First Examination. Pass:* J. F. V. Woolley.

L.D.S.—*Second Examination. Pass:* A. R. Brook, C. Gibbs, L. H. Valentine.

L.D.S.—*Third Examination. Pass:* W. D. Arnold[9] *, D. A. Holmes[7] *, W. E. C. Chaplin[8] *, J. Hornsby[8] [9], B. A. Oliver[8] [9], R. L. Yendell[8] [9], H. B. Doubt[7], Alice B. U. Leigh[7], R. E. May[7], R. H. Shipway[7], R. C. Taylor[7], W. H. E. Turnbull[7], J. B. Westlake[7], F. E. R. Williams[7], J. B. Wood[7], J. W. B. Kay[8], H. Sheffield[9].

L.D.S.—*Final Examination. Pass: Section II:* G. K. G. Jennings*, G. J. Mills*, R. S. Saxton*, R. M. Sharp*. *In Section I:* Jean Bryant.

Conjoint Board.

L.R.C.P., M.R.C.S.—*First Examination. Pass: In Physiology:* F. W. P. Clutterbuck.

L.R.C.P., M.R.C.S.—*Final Examination. Pass: In Pathology:* B. C. E. Aldous. *In Medicine:* Margot H. Dickson, G. Steiner. *In Midwifery:* F. Frank, H. Jelinek.

[1] With Distinction in Anatomy.
[2] With Distinction in Physiology.
[3] With Distinction in Surgery.
[4] With Distinction in Obstetrics.
[5] With Distinction in Medicine.
[6] With Distinction in Public Health.
[7] In Dental Anatomy.
[8] In Dental Mechanics and Properties of Materials.
[9] In Dental Materia Medica.
* Completing the examination.
† With Distinction.

APPOINTMENTS.

Bristol Royal Infirmary.—Senior Resident Medical Officer: Betty Fox, M.B., B.S., M.R.C.S., L.R.C.P. Resident Anæsthetist: W. Maidlow, M.R.C.S., L.R.C.P., D.A. House Surgeons to the Casualty Department: R. D. R. Shanks, M.B., Ch.B., J. K. Lewis, M.B., Ch.B. House Surgeons to the Fracture Department: Betty Fox, J. D. Cardale, M.B., Ch.B. House Surgeon to Mr. Rendle Short and Mr. Paul: G. S. Andrews, M.B., Ch.B.; to Mr. Chitty: R. C. Blackney, M.B., Ch.B.; to Mr. Adams: Cecil Drillien, M.B., Ch.B.; to Mr. Tasker and Mr. FitzGibbon: D. S. Maunsell, M.B., Ch.B. House Physician to Dr. Carleton and Dr. Perry: Marie Bartlett, M.B., Ch.B.; to Dr. Herepath and Dr. Sutton: N. J. Brown, M.B., Ch.B.; to Dr. Birrell and Dr. Orr-Ewing: J. C. Valentine, M.B., Ch.B.; to Dr. Todd: P. Legat.

Bristol General Hospital.—Senior Resident Medical Officer: R. G. Boyd, M.B., Ch.B. House Surgeon to the Casualty Department: C. J. R. Jacob, M.R.C.S., L.R.C.P. House Surgeon to Mr. Moore and Mr. Wood: H. R. Newman, M.B., Ch.B. House Surgeons to the E.N.T. Department: J. H. G. Morris, M.R.C.S., L.R.C.P., L.D.S.; G. Schwizer, M.R.C.S., L.R.C.P. House Surgeons to the Gynæcological Department: R. G. Boyd, S. B. Richards, M.B., Ch.B. House Surgeon to the Skin and Radium Departments: Mary Hunt, M.B., Ch.B.

Bristol Royal Hospital, Weston Branch.—House Physician: Megan Jones, M.B., Ch.B., M.R.C.S., L.R.C.P. House Surgeon: Christine Rendell, M.B., Ch.B.